Regional Connector Transit Corridor
Draft Environmental Impact Statement/
Draft Environmental Impact Report

APPENDIX GG

CUMULATIVE IMPACTS

State Clearinghouse Number: 2009031043

Regional Connector Transit Corridor
Cumulative Impacts
Technical Memorandum

March 25, 2010

Prepared for

Los Angeles County Metropolitan Transportation Authority

One Gateway Plaza

Los Angeles, CA 90012

State Clearinghouse Number: 2009031043

This technical memorandum was prepared by:

CDM
523 West Sixth Street
Suite 400
Los Angeles, CA 90014

TABLE OF CONTENTS

Tables

Figures

ACRONYMS

APE	Area of Potential Effects
BTU	British thermal units
Caltrans	California Department of Transportation
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CIP	Capitol Improvement Plans
CO	Carbon monoxide
CRA	Community Redevelopment Agency
DCBID	Los Angeles Downtown Center Business Improvement District
EIR	Environmental Impact Report
GHG	Greenhouse Gases
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
LRT	Light Rail Transit
LRTP	Long Range Transportation Plan
Metro	Los Angeles County Metropolitan Transportation Authority (LACMTA)
NEPA	National Environmental Policy Act
NOx	Oxides of nitrogen
PM2.5	Particulate matter less than 2.5 microns in aerodynamic diameter
RCPG	Regional Comprehensive Plan and Guide

RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
TSM	Transportation System Management
VMT	Vehicle Miles Traveled
VOC	Volatile organic compounds

1.0 SUMMARY

This technical memorandum summarizes the potential cumulative impacts that could result from the Regional Connector Transit Corridor project in combination with the identified past, present, and reasonably foreseeable projects considered. Cumulative impacts are analyzed in more detail in each of the technical memoranda prepared for each resource area. For more information about potential cumulative impacts please see the resource specific technical memoranda. The alternatives analyzed include the No Build Alternative, the Transportation System Management (TSM) Alternative, the At-Grade Emphasis Light Rail Transit (LRT) Alternative, the Underground Emphasis LRT Alternative, the Fully Underground LRT Alternative –Little Tokyo Variation 1, and the Fully Underground LRT Alternative –Little Tokyo Variation 2.

The No Build Alternative would not involve any construction and, therefore, would not result in any cumulative impacts, with the exception of transit systems and environmental justice impacts. Cumulative transit impacts associated with the No Build Alternative would be adverse as this alternative would not close the gap in the rail transit system and would not provide the travel time and convenience benefits for transit users associated with the build alternatives. This adverse transit impact would disproportionately affect transit-dependent users who also tend to be environmental justice populations based on income and other factors. For these transit patrons that have no other travel options, travel times would increase and transit usage would be less convenient resulting in a cumulative adverse environmental justice impact from the No Build Alternative. There would be a negative transit impact upon those that rely on the public transit system, for east-west and north-south travel through the downtown area. This would result in an adverse cumulative transit impact. The No Build Alternative would result in cumulative disproportionate adverse impacts related to transit service equity.

With implementation of mitigation, the TSM Alternative would not contribute to any cumulative impacts, with the exception of transit systems and environmental justice. Cumulative transit impacts associated with the TSM Alternative would be adverse as this alternative would not close the gap in the rail transit system and would not provide the travel time and convenience benefits for transit users associated with the build alternatives. This adverse transit impact would disproportionately affect transit-dependent users who tend to be environmental justice populations based on income and other factors. For these transit patrons that have no other travel options, travel times would increase and transit usage would be less convenient resulting in a cumulative adverse environmental justice impact from the TSM Alternative. There would be a negative transit impact upon those that rely on the public transit system, for east-west and north-south travel through the downtown area. This would result in an adverse cumulative transit impact. The TSM Alternative would result in cumulative disproportionate adverse impacts related to transit service equity.

Even with implementation of possible mitigation measures, construction of the At-Grade Emphasis LRT Alternative could result in a considerable contribution to cumulative construction impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements. Construction and operation of the At-Grade Emphasis LRT Alternative would result in a considerable contribution to adverse cumulative impacts at 11 intersections during the AM peak hour and 15 intersections during the PM peak hour. With regards to permanent displacements, operation of the At-Grade Emphasis LRT Alternative would partially offset potential impacts due to loss of parking.

Although regional construction emissions under the At-Grade Emphasis LRT Alternative would be significant and unavoidable, operation of the alternative would reduce regional vehicle miles traveled (VMT), which would result in a beneficial impact to air quality and outweigh the temporary construction impacts. Cumulative impacts to all other environmental resources would be less than significant.

With incorporation of possible mitigation measures, construction of the Underground Emphasis LRT Alternative could still result in a considerable contribution to cumulative construction impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements. Implementation of the Underground Emphasis LRT Alternative would result in a considerable contribution to significant cumulative impacts at two intersections (Alameda Street/2nd Street and Flower Street/4th Street) during the AM peak hour and three intersections (Judge John Aiso Street/1st Street; Alameda Street/2nd Street; and Judge John Aiso Street/Temple Street) during the PM peak hour. With regard to permanent displacements, operation of the Underground Emphasis LRT Alternative would partially offset potential impacts due to loss of parking.

Although regional construction emissions under the Underground Emphasis LRT Alternative would be significant and unavoidable, operation of the alternative would reduce regional VMT, which would result in a beneficial impact to air quality and outweigh the temporary construction impacts. Cumulative impacts to all other environmental resources would be less than significant.

The Fully Underground LRT Alternative – Little Tokyo Variation 1 and the Fully Underground LRT Alternative – Little Tokyo Variation 2 would result in similar cumulative impacts. With incorporation of possible mitigation measures, construction of the Fully Underground LRT Alternative – Little Tokyo Variation 1 and the Fully Underground LRT Alternative – Little Tokyo Variation 2 could still result in a considerable contribution to cumulative construction impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements. Implementation of either of these alternatives would result in a cumulatively considerable impact at one intersection (Flower Street/ 4th Street) during the AM peak hour.

Although regional construction emissions under the Fully Underground LRT Alternative – Little Tokyo Variation 1 and the Fully Underground LRT Alternative – Little Tokyo Variation 2 would be significant and unavoidable, operation of the either alternative would reduce regional VMT, which would result in a beneficial impact to air quality and outweigh the temporary significant construction impacts. The Fully Underground LRT Alternative – Little Tokyo Variation 1 and the Fully Underground LRT Alternative – Little Tokyo Variation 2 would not contribute to cumulative impacts with respect to all other environmental resources.

2.0 INTRODUCTION

This technical memorandum summarizes potential cumulative impacts that could result from the Regional Connector Transit Corridor project in combination with identified past, present, and reasonably foreseeable projects. Please see the resource specific technical memoranda for a more detailed analysis of cumulative impacts for each resource.

The National Environmental Policy Act (NEPA) provides for consideration of three types or categories of effect: direct, indirect, and cumulative (40 C.F.R. §1508.25). Direct effects are those caused directly by the project activities. Indirect effects are caused by project activities that occur later in time, at some distance from the project, and are in the chain of cause-and-effect relationships.

According to Section 15130 of the California Environmental Quality Act (CEQA) Guidelines, an environmental impact report (EIR) shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. If a project's incremental effect is not cumulatively considerable, the effect is not considered significant.

"Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative effects include both direct and indirect effects in combination with the past and reasonably foreseeable future actions of other projects and entities. The cumulative impact is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable projects. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time, regardless of the agency or person undertaking the project.

If there are no direct or indirect effects on a particular resource, then there cannot be any cumulative effects on that resource from the project and that discipline will not be discussed further. Where an alternative results in a considerable contribution to a cumulative impact, mitigation measures have been identified to reduce the project's contribution to the cumulative impact.

3.0 METHODOLOGY FOR IMPACT EVALUATION

3.1 NEPA Guidance

An analysis of cumulative impacts is required by NEPA, as defined in 40 Code of Federal Regulations (CFR) 1508.7. The NEPA analysis of cumulative impacts follows the guidance of the Council of Environmental Quality's (CEQ) 1997 document, *Considering Cumulative Effects Under the National Environmental Policy Act.* In accordance with this guidance, the significance of impacts is evaluated based on context and intensity. Considerations of context and intensity also include a discussion of the severity of the impacts and the likelihood of their occurrence.

The standards of significance for cumulative impacts depend on "the type of resource being analyzed, the condition of the resource, and the importance of the resource as an issue (as identified through scoping)" (CEQ 1997, p.45). Therefore, the standards of significance used for cumulative impacts are discipline-specific and may follow the same standards of significance established for the direct and indirect impacts of the project on each resource area. For some resources, limited details about other projects may prevent analysis from reaching the level of precision implied in the standards of significance for the direct and indirect impacts.

3.2 CEQA Guidance

In accordance with CEQA, a significant adverse cumulative impact would occur if an alternative would have environmental effects that are individually limited, but cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects or expected growth.

The standards for "significant" or "cumulatively considerable" are based on the established significance thresholds for each resource area. However, as noted with regard to NEPA, the analysis level achievable for the cumulative impact evaluation may not provide sufficient detail for comparison to the exact standards of significance used for the project alone. The *Los Angeles CEQA Thresholds Guide* provides some guidance for the cumulative analysis for some resource areas, but does not contain specific standards of significance for each resource area with regard to cumulative impacts.

Determining whether a cumulative impact is "considerable" should also consider the effect of mitigation measures in reducing the effect on a resource. Compliance with previously approved plans or mitigation programs may also be a guide to determining that an effect is not significant. Depending on the discipline area, demonstrating that the project is included in a regional plan or projection may be a measure of whether the project is contributing

cumulative effects. Regional plans developed by the Southern California Association of Governments (SCAG) such as the Regional Transportation Plan (RTP), the Regional Comprehensive Plan and Guide (RCPG), or the Regional Transportation Improvement Program (RTIP)may provide appropriate thresholds or mitigation measures for particular project-related effects.

3.3 Area of Potential Impact

The cumulative context includes the geographic area, timeframe, and/or type of projects that would contribute to the potential cumulative effect. This context differs for each discipline. Each discipline identifies a relevant geographic area for evaluation for direct, indirect, and cumulative impacts. The geographic range considered for the cumulative analysis can vary based on the resource area.

For example, the geographic range over which air quality impacts would occur would not necessarily be the same as the geographic range considered for traffic impacts. In addition, for some disciplines the scope of analysis for cumulative impacts is based on a list of reasonably foreseeable related projects while for others it is be based on general trends in demographics or other regional forecasts. The methodology section in the technical memorandum for each resource area describes the basis for analysis of direct, indirect and cumulative impacts.

3.4 Methodology

The cumulative impacts analysis considered long-term effects of the project; those impacts which may not be apparent in the near-term, but which may evolve into beneficial or adverse impacts in the long-term. Specifically, the cumulative analysis for each resource area considered impacts related to general growth projected for the area. The regional plans for transportation and land use were consulted for the planned future conditions.

According to CEQA Guidelines, the discussion of cumulative impacts should reflect the severity of the impacts, as well as the likelihood of their occurrence. However, the evaluation need not be as detailed as the discussion of environmental impacts attributable to the proposed project alone. Additionally, the discussion should be guided by the standards of practicality and reasonableness.

Beneficial impacts are also considered in this analysis of cumulative impacts. Beneficial impacts could be associated with increased ridership and expanded transit service resulting from implementation of the proposed project in the context of reasonably foreseeable projects and conditions.

There are several steps involved in analyzing cumulative impacts. The initial steps involve analyzing direct and indirect effects, followed by the application of those results to cumulative

effects. These steps, which were followed in the technical memorandum for each resource, are generally outlined below:

- Establish the geographic scope for the analysis. The geographic scope is unique to each discipline and used to analyze project-level and cumulative impacts (documented in the technical memorandum for each resource as part of the methodology for analyzing impacts).
- Establish the time frame for the analysis; important project time frames are defined in Section 3.4.1.
- Characterize the thresholds of significance that are relevant to the resources, ecosystems, and communities of concern. The significance thresholds used to analyze project-level and cumulative impacts are documented in the technical memorandum for each resource as part of the methodology for analyzing impacts for each discipline.
- Identify the effects associated with the proposed action (done as part of the analysis of direct and indirect impacts in the technical memorandum for each resource). If there are no direct or indirect effects of the project on a resource or discipline area then there cannot be any cumulative impacts.
- Identify other actions affecting the resources, ecosystems, and communities of concern. Past, present, and future reasonably foreseeable related projects assumed for the Regional Connector Transit Corridor project cumulative impacts analysis are identified in Section 4.0.
- Define the baseline existing conditions for the resources, ecosystems, and communities. This step is documented in the technical memorandum for each resource as part of the affected environment section and in the description of the No Build Alternative baseline year, 2035 condition.
- Identify the important cause and effect relationships between human activities and resources, ecosystems, and communities. This step is documented in the technical memorandum for each resource as part of the potential effects of each alternative.
- Determine the magnitude and significance of cumulative effects. Significance determinations are related back to the background laid in the methodology section and the thresholds of significance that are relevant to each resource.
- Identify potential mitigation measures for potential effects on each environmental resource. Potential mitigation measures could include measures that would avoid, minimize, or mitigate cumulative impacts as well as direct and indirect impacts.

3.4.1 Project Time Frames

Construction Period: 2014 -2019

The construction period is assumed to extend from 2014 to 2019. A worst-case (i.e. maximum potential impact) scenario is assumed for each discipline. For example, it is assumed that all other related projects for which there is no current construction schedule will be under construction during the project construction period.

Year of Opening: 2019

During 2019, any potential effects from operation of the system would begin to be seen. The planning horizon for the project is 2035.

Project Baseline Year: 2035

The future year 2035 is the baseline year for assumptions regarding the No Build alternative.

4.0 AFFECTED ENVIRONMENT

4.1 Current and Reasonably Foreseeable Related Actions

There are two ways to address the question of what is reasonably foreseeable within the project area. The first is to evaluate the project effects in combination with expected trends in population, employment, land use, and transportation. The second method is to generally review a list of projected projects within the project area that are expected to be under construction or in operation during the same time frames as the proposed project. The most appropriate method may vary by discipline.

Forecasts for elements such as population, employment, land use, air quality, and transportation from regional plans were used in the analysis. Regional plans prepared by SCAG and general plans prepared by the City and County of Los Angeles and other nearby cities provided information on trends and forecasts relevant to the impact analysis for specific disciplines.

The following tables identify projects within the general project area that are either anticipated to be completed prior to start of construction in 2014 or which may be under construction during this project's proposed construction period of 2014 to 2019. There are several subcategories identified, including major renovations, new construction, transportation, and utility projects. The locations of the new construction projects are also indentified in Figures 4-1 through 4-3.

The project lists were developed from information available from the Los Angeles Downtown Center Business Improvement District (DCBID) fourth quarter 2008 project database and the utility district capital improvement plans (CIP). The Community Redevelopment Agency of Los Angeles (CRA) also maintains lists of potential projects. However, it would appear that the projects listed in the DCBID database better meet the definition of "reasonably foreseeable". Many of these potential projects are only in the conceptual planning stages and the timing of construction or operations are unknown. Projects with no reported completion date have been compiled in the tables of projects assumed to be under construction or completed between 2014 and 2019 as a worst-case scenario.

4.1.1 Projects Anticipated to be Completed Prior to 2014

Many of the projects identified in Tables 4-1 and 4-2 are currently under construction and have identified completion dates prior to 2014. These lists may also include some projects which have recently been completed. The locations of related projects are illustrated in Figure 4-1.

Table 4-1. Major Renovation Projects Anticipated to be Completed Prior to 2014[a]

Number	Project Name	Address[a]	Land Use	Units	Completion
CR1	Rowan Building Lofts	460 S. Spring Street	Residential	206	2009 Q4
CR2	Great Republic Lofts	756 S. Spring Street	Residential	72	2009 Q1
CR3	Metropolitan Lofts	315 W. 5th Street	Residential	84	2009 Q1
CR4	SB Spring	650 S. Spring Street/111 W. 7th Street	Residential	195	2009 Q1
CR5	El Dorado	416 S. Spring Street	Residential	65	2009 Q4
CR6	SB Tower	600 S. Spring Street	Residential	250	2009 Q2
CR7	Rosslyn Lofts	116 W. 5th Street	Residential	297	2009 Q4
CR8	308 E. Ninth St.	308 E. 9th Street	Residential	38	2009 Q1
CR9	Broadway Exchange Building	219 W. 7th Street/660 Broadway	Residential	68	2009 Q1
CR10	Factory Place Arts Complex	1330 Factory Place	Residential	63	2009 Q1
CR11	655 Hope	655 S. Hope Street	Residential	80	2009 Q3
CR12	Barn Lofts	940 E. 2nd Street	Residential	39	2009 Q3

[a] *All projects are located within the City of Los Angeles.*

Transportation

The following transportation capital improvements within the project area are currently identified as funded under Metro's 2009 Long Range Transportation Plan and SCAG's 2008 RTIP. The projects listed in this section are anticipated to be completed prior to 2014 and are shown in Figure 4-2.

- Metro Gold Line to East Los Angeles: This 6-mile light rail extension of the Metro Gold Line from its current southern terminus at Union Station eastward to East Los Angeles opened in 2009. From Union Station, the tracks cross over the Santa Ana Freeway (US 101) and veer west toward Alameda Street. The tracks then follow along the east side of Alameda Street and come down to grade at the intersection of Temple and Alameda Streets. After crossing Temple Street at-grade, the tracks reach the Little Tokyo/Arts District Station on the northeast corner of 1st and Alameda Streets. The tracks then turn eastward on 1st Street and continue to East Los Angeles. With this extension, the Metro Gold Line will provide service from East Los Angeles to Pasadena.

- Eastside Four Quadrant Gate Project: This project, sponsored by Metro, would install rail crossing gates at at-grade intersections located along the portion of the Metro Gold Line to East Los Angeles. This project would include some intersections located along Alameda and 1st Streets in Little Tokyo.

- Metro Expo Line: This 9-mile light rail line will extend from the 7th Street/Metro Center Station to Culver City and is expected to be open in 2010. It will share the boarding platforms at the 7th Street/Metro Center and Pico Stations and the tracks between 7th Street/Metro Center Station and the intersection of Flower Street and Washington Boulevard with the Metro Blue Line.

In addition to the projects listed above, the Metro Gold Line from Pasadena to Azusa and the Metro Expo Line from Culver City to Santa Monica are expected to be completed prior to 2014. These projects are outside of the project area and may only present potential cumulative impacts for operational considerations in a few disciplines. Some cumulative impacts may be beneficial depending upon the alternative.

Utility Projects

The City of Los Angeles maintains an extensive project list of public works projects. One utility project has been identified for construction prior to year 2014. This related project involves the development of District Cooling System proposed by the City of Los Angeles, Department of Water and Power. The District Cooling System would provide air conditioning to office buildings in downtown. The project involves a cooling plant, which would be constructed near 1st Street and Beaudry Avenue with distribution lines located in 1st Street from the cooling plant to San Pedro Street. The projected buildout year for this related project is 2014. Given that the project involves operation of a district cooling system with trunk lines in 1st Street, it is unlikely that it would change the existing baseline conditions. No other projects are planned before 2014 within the project area that would change the existing baseline conditions. Most of the planned projects within the City are related to ongoing maintenance or replacement in-kind of existing infrastructure.

Table 4-2. New Construction Projects Anticipated to be Complete Prior to 2014					
Number	Project Name	Address[a]	Land Use	Units	Completion
CC1	717 Ninth	845 S. Flower Street	Residential	214	2009 Q3
CC2	The Medallion	334 S. Main Street	Mixed Use	200	2009 Q4
CC3	Concerto	900 Figueroa Street	Mixed Use	629	2009 Q3
CC4	Sakura Crossing	235 S. San Pedro Street	Mixed Use	230	2009 Q2
CC5	Hewitt-First Lofts	120-130 S. Hewitt Street	Residential	33	2009 Q3
CC6	LA Live	777 W. Chick Hearn Court	Mixed Use	224	2010 Q1
CC7	The Orsini (Phase III)	867 W. Cesar E Chavez Avenue	Residential	210	2010 Q3
CC8	Alameda and Fourth Condos	4th & Alameda Street	Residential	52	2011 Q1
CC9	Hanjin Group	7th and Figueroa	Mixed Use	unknown	2014

4.1.2 Projects Potentially Under Construction 2014 to 2019

Tables 4-3, 4-4, and 4-5 show projects which are currently in some stage of conceptual planning, but which do not have a defined schedule. Given the uncertainties of project development compounded by the current economic conditions, the probability that these projects will occur is unknown. It may be reasonable to assume that this compilation of projects represents a worst case condition for the construction period. The locations of these related projects are shown in Figure 4-3.

Table 4-3. Institutional and Public Facility Projects Expected to be Completed by 2014[a]			
Number	**Project Name**	**Address[a]**	**Land Use**
CC10	Police Headquarters Building	1st Street between Main and Spring	Institution
CC11	Police Headquarters Vehicle Maintenance Facility	Main Street between 2nd and 3rd Streets	Institution
CC12	Metropolitan Detention Center	Temple & Los Angeles Street	Institution

[a] *All projects are located within the City of Los Angeles.*

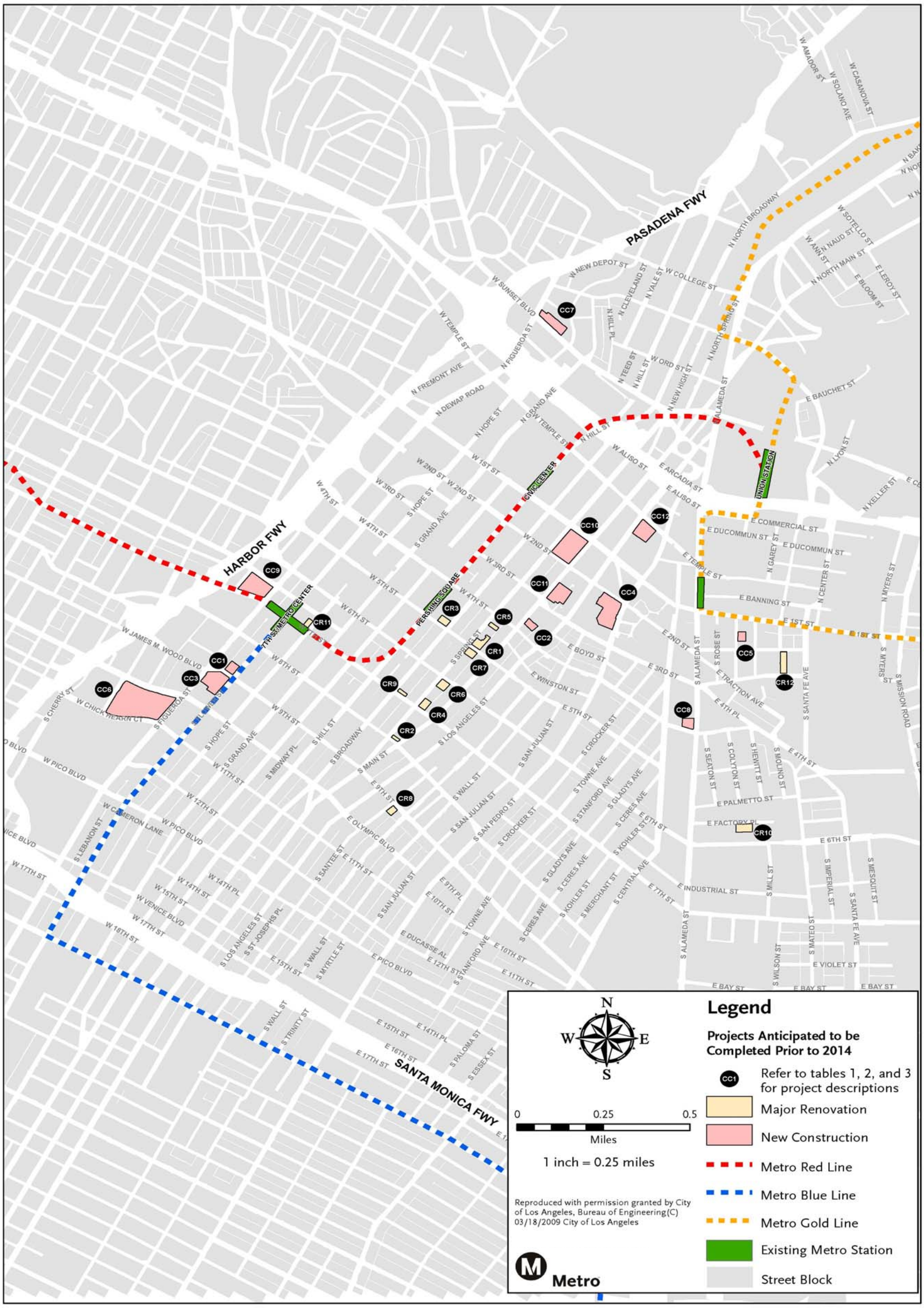

Figure 4-1. Projects Anticipated to be Completed Prior to 2014

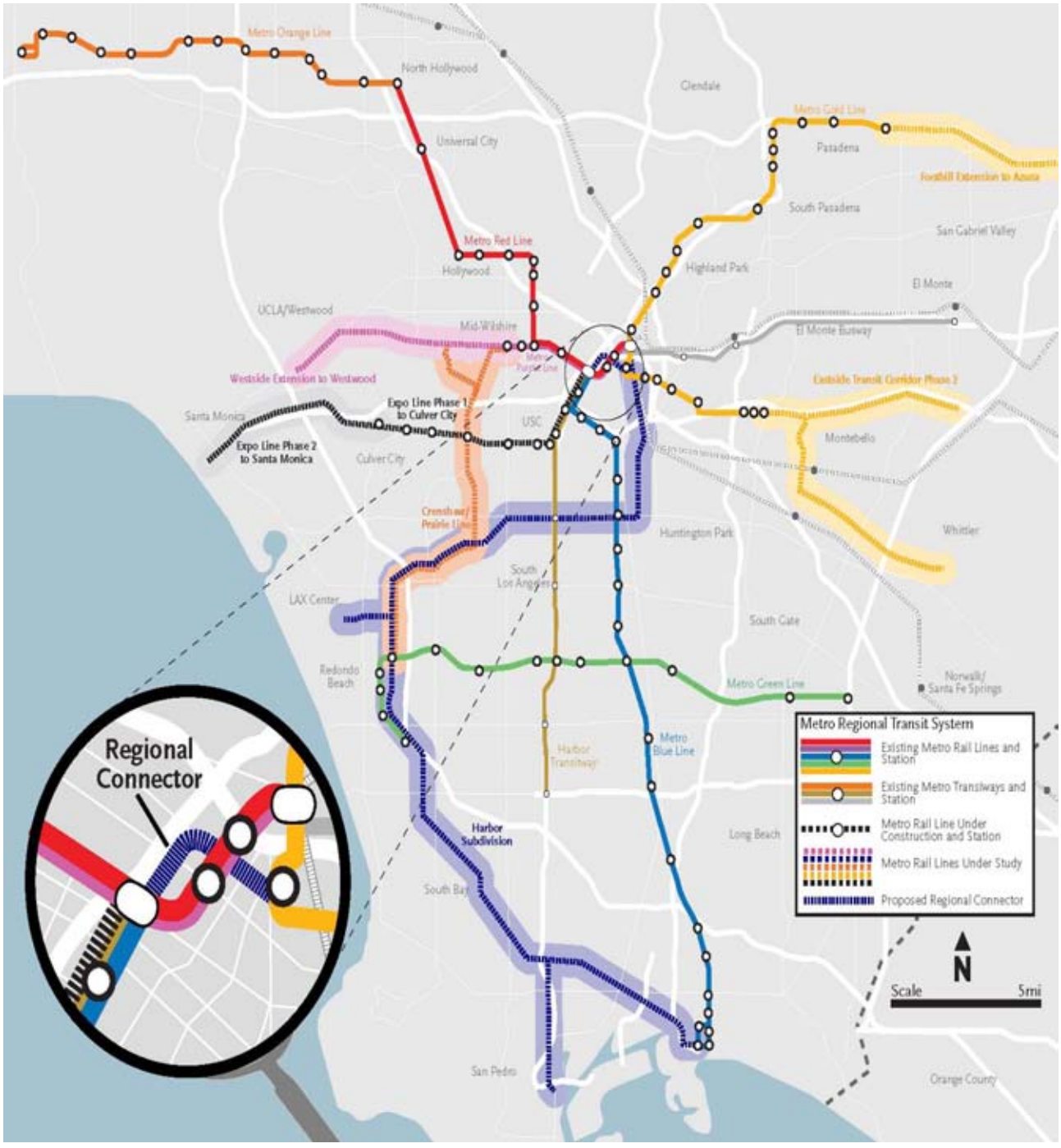

Figure 4-2. Year 2035 Rail Transit and Bus Rapid Transit Projects

Major Renovations

Projects located within the project area that propose to convert offices to residential housing and/or which involve a major renovation of an existing structure include:

Table 4-4: Major Renovation Projects Potentially Under Construction 2014-2019[a]

Number	Project Name	Street Address[a]	Land Use	Units
R1	Chester Williams Building	5th Street & Broadway	Residential	82
R2	Cosavings Building	315 W. 9th Street	Residential	98
R3	Former Beacon Storage Building	350 S. Alameda Street	Residential	59
R4	Giannini Place	649 S. Olive Street	Residential	100
R5	Gill Lofts	752-756 S. Los Angeles	Residential	9
R6	Herald Examiner	1111 S. Broadway	Mixed Use	587
R7	Mercantile Arcade Building	541 S. Broadway	Residential	140
R8	Chinatown Lofts	Not Mapped	Mixed Use	318

[a] *All projects are located within the City of Los Angeles.*

New Construction

Figure 4-3 provides a map of the location of new potential construction projects in the project area. New construction encompasses building new structures on vacant lots, as well as any demolition of older structures needed to clear the lots for construction.

Table 4-5: New Residential and Mixed Use Construction Projected For 2014-2019[a]

Number	Project Name	Street Address[a]	Land Use	Units
C1	611 Place	611 W. 6th Street	Mixed Use	402
C2	751 S. Spring Street	751 S. Spring Street	Residential	257
C3	808 N Spring Street	808 N Spring Street	Residential	123
C4	808 S. Olive Street	808 S. Olive Street	Residential	

Table 4-5: New Residential and Mixed Use Construction Projected For 2014-2019[a]				
Number	**Project Name**	**Street Address[a]**	**Land Use**	**Units**
C5	1027 Wilshire	1027 Wilshire Blvd.	Residential	402
C6	1133 S. Hope Street	1133 S. Hope Street	Residential	159
C7	1150 Grand	1150 Grand Avenue	Residential	374
C8	1340 S. Figueroa Street	1340 S. Figueroa Street	Mixed Use	
C9	1500 Figueroa	1500 S. Figueroa Street	Mixed Use	195
C10	AMP Lofts	695 S. Santa Fe Street	Mixed Use	180
C11	BC Plaza Lofts	711 N. Broadway	Residential	53
C12	Block 8	200 S. Los Angeles Street		510
C13	Blossom Plaza	900 N. Broadway	Mixed Use	262
C14	Capitol Milling Building	1231 N. Spring Street	Mixed Use	40
C15	Chinatown Gateway Plaza	617 N. Broadway	Mixed Use	280
C16	City Front Place	530 E. Washington Blvd.	Residential	136
C17	Glass Tower	1050 S. Grand Avenue	Residential	128
C18	Hai Wei	871 Figueroa Terrace	Residential	102
C19	Holland Partners Project	Not Mapped	Residential	360
C20	Industrial Lofts	1800 E Industrial Street	Residential	36
C21	L.A. Central	11th & Figueroa Street	Mixed Use	860
C22	L.A. Lofts	1024 S. Hope Street	Residential	250
C23	Lucia Tower	Grand Ave & Cesar Chavez	Residential	200
C24	Matsu	2nd & Los Angeles Street	Residential	

Table 4-5: New Residential and Mixed Use Construction Projected For 2014-2019[a]				
Number	**Project Name**	**Street Address[a]**	**Land Use**	**Units**
C25	McGregor Company Tower	Not Mapped	Mixed Use	123
C26	Metropolis Phase I	831 Francisco Street	Mixed Use	351
C27	Metropolis Phase II	831 Francisco Street	Mixed Use	388
C28	Metropolis Phase III	831 Francisco Street	Mixed Use	88
C29	Nikkei Center	1st & Alameda Street	Mixed Use	390
C30	Olive Street Lofts	1103 S. Olive Street	Residential	105
C31	Olympic	Olympic & Grand	Residential	150
C32	One Santa Fe	230 S. Santa Fe Avenue	Mixed Use	440
C33	Opus	718 S. Grand Avenue	Residential	875
C34	Pacific Exchange	233 Beaudry Avenue	Residential	850
C35	Park Fifth	5th between Hill & Olive	Mixed Use	790
C36	Piero II	1052 W 6th Street	Mixed Use	340
C37	Renato Apartments	527-531 S. San Julian Street	Residential	123
C38	Residences @ Bixel	1110 Ingraham Street	Mixed Use	334
C39	Seven West	1401 W. 7th Street	Residential	62
C40	Shy Barry Tower II	Main & 6th Street	Residential	700
C41	South Village	8th & Hope Street	Residential	225
C42	South Village- Park Tower	9th & Hope Street	Residential	300
C43	The Grand Phase I (Parcel Q)	121 S. Olive Street	Mixed Use	500

Table 4-5: New Residential and Mixed Use Construction Projected For 2014-2019[a]				
Number	**Project Name**	**Street Address[a]**	**Land Use**	**Units**
C44	The Grand Phase II (Parcel L)	220 S. Hope Street	Mixed Use	720
C45	The Grand Phase II (Parcel M2)	236 S. Hope Street	Mixed Use	720
C46	The Grand Phase III (Parcel W2)	440 W 1st Street	Mixed Use	720
C47	The Yards	875 E. Traction Avenue	Residential	400
C48	Ullman Tower I	Broadway between 8th & 9th Streets	Residential	320
C49	Ullman Tower II	Broadway between 9th Street & Olympic Blvd.	Residential	195
C50	Vibiana Phase II	114 E. 2nd Street	Mixed Use	300
C51	Zen	250 S. Hill Street	Residential	302

[a] *All projects are located within the City of Los Angeles.*

Table 4-6: New Institutional and Public Facility Construction Projected For 2014-2019[a]			
Number	**Project Name**	**Street Address[a]**	**Land Use**
C52	Children's Museum and Art Park	Temple & Judge Aiso Street	Public
C53	Federal Courthouse	1st Street & Broadway	Institution
C54	Proposed Civic Park	Main Street to Grand Avenue	Public

[a] *All projects are located within the City of Los Angeles.*

Transportation

The following transportation capital improvements within the project area are currently identified as funded under Metro's 2009 Long Range Transportation Plan and the Southern California Association of Governments' (SCAG) 2008 Regional Transportation Improvement Program. In addition to the projects listed below, the Metro Crenshaw Line and the Metro Purple Line from Wilshire/Western to Westwood will be under construction, although they are located well outside of the project area and are not likely to present construction-related cumulative impacts.

- Congestion Reduction Demonstration Program: This program will convert existing high-occupancy vehicle (HOV or carpool) lanes to high-occupancy toll (HOT) lanes, where solo drivers could pay a toll to use the lanes. Several stretches of Los Angeles County freeway HOV lanes have been identified for this pilot program, including the El Monte Busway, which runs parallel to the Santa Ana (US 101) and San Bernardino (I-10) Freeways from Alameda Street to El Monte.

- SR 110 Auxiliary Lanes: This project would reconfigure ramp structures and construct northbound and southbound auxiliary lanes on the Harbor Freeway (SR 110) between 8th Street and the Santa Monica Freeway (I-10).

- Angels Flight Railway Rehabilitation: This project would involve an easement between Hill and Olive Streets and 3rd and 4th Streets for the construction of a new propulsion system. The rehabilitation will allow for service along the currently inactive rail line to be restored. The Angels Flight is a short funicular railway that travels the length of one city block up the side of Bunker Hill.

- Eastside Light Rail Pedestrian Linkages: This project, sponsored by the City of Los Angeles, would improve pedestrian access to the Metro Gold Line to East Los Angeles stations, including the Little Tokyo/Arts District Station at 1st and Alameda Streets.

- Fashion District Streetscape Phase II: This project would provide streetscape and sidewalk enhancements to facilitate increased pedestrian activity between the Fashion District and the 7th Street transit corridor. The Fashion District is roughly bounded by 7th Street, Main Street, San Pedro Street, and the Santa Monica Freeway (I-10).

- Downtown Los Angeles Alternative Green Transit Modes Trial Program: This program would offer shared-ride bicycles and neighborhood electric vehicles as an alternative to existing DASH shuttle services for the purpose of accessing City Hall. City Hall is located within the block bounded by 1st, Spring, Temple, and Main Streets.

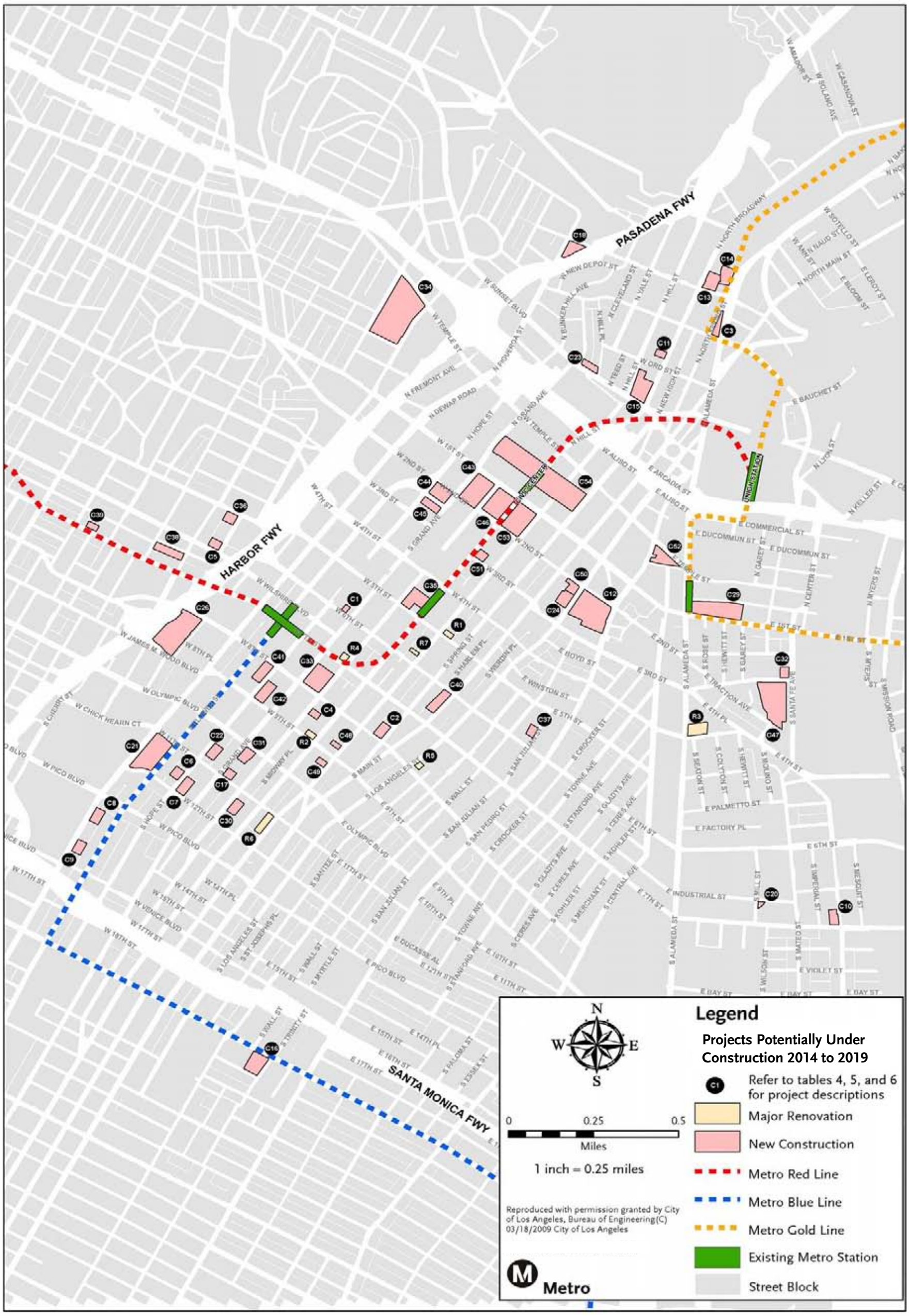

Figure 4-3. Projects Potentially Under Construction 2014 to 2019

- Little Tokyo Pedestrian Linkages: This City of Los Angeles project would create sidewalk and crosswalk enhancements to encourage pedestrian activity within the Little Tokyo area. The project also calls for new landscaping and street furniture.

- East Downtown Truck Access Improvements: This City of Los Angeles project calls for roadway improvements, widening, and restriping to facilitate truck access to the industrial area in the southeastern portion of the project area.

- Route 101 Southbound Improvements: This State of California Department of Transportation (Caltrans) project calls for replacement of the southbound Vignes Street and Hewitt Street ramps with new ramps at Garey Street on the northeast corner of the project area.

- Route 101 Pedestrian Bridge Enhancement: This City of Los Angeles project calls for the enhancement of pedestrian bridges across the Santa Ana Freeway (US 101) along the northern edge of the project area.

The following two projects are not currently included in the regional transportation plans listed above, however, these projects are in some stage of planning and could potentially occur during the construction period for the Regional Connector project.

- Resurrection of the Red Car Trolley Services in the Downtown Los Angeles Area: This project seeks to implement a historic streetcar service connecting the South Park, Financial District, South Broadway, and Little Tokyo areas of downtown Los Angeles. The service would be primarily, if not entirely, at grade and the tracks could potentially be constructed in existing mixed-flow lanes. Though streetcar technology is similar to light rail, the Red Car service would be more local in scope, with stops spaced every two blocks or so.

- Broadway Transit Mall: This project would close part of South Broadway to auto traffic, tentatively from 2nd Street to 9th Street, in order to create a pedestrian and transit mall. Under this plan, only transit buses and delivery trucks would be permitted to drive through the transit mall. Broadway currently experiences among the highest volumes in pedestrian traffic in Los Angeles, and this project would help alleviate crowding on the sidewalks.

The California High-Speed Rail project proposes to construct a 700-mile long electric-power, steel-wheel-on-steel-rail, high-speed train system from Sacramento to San Diego. The Los Angeles portion of the project would provide a connection between Palmdale and Orange County utilizing existing Metrolink right-of-way to connect to Union Station. The high speed rail system would likely be built as an elevated guideway connecting to the upper level of Union Station and transitioning to an at-grade system in or near the Burlington Northern

Sante Fe/Metrolink rail corridor (LOSSAN rail corridor). The high speed rail system would either share tracks with existing non-electric trains or operate using dedicated tracks within the LOSSAN rail corridor. Project buildout is anticipated for year 2030. The California High-Speed Rail project is designed to interface with existing passenger rail service and to provide additional capacity to meet increases in intercity travel demand in California. The Regional Connector Project would be constructed and operated in coordination with the California High-Speed Rail project. Metro would also coordinate and interface with the County of Los Angeles portion of the California High-Speed Rail project.

Utility Projects

No major utility projects have been identified within the project area during the construction period of 2014 to 2019. The City of Los Angeles maintains an extensive project list of public works projects. However, there do not appear to be many projects planned after 2014 within the City and there do not appear to be any planned within the project area. Most of the planned projects within the City are related to ongoing maintenance or replacement in kind of existing infrastructure.

4.1.3 Projects Potentially Under Construction post-2019

The existing databases and long-range plans do not include any reasonably foreseeable projects beyond 2019. For potential cumulative impacts beyond the year of opening, trend information on land use, and population and employment growth from adopted regional plans have been used. The cumulative impacts analysis includes positive impacts as well as adverse effects, particularly with respect to the enhancements in regional mobility that may be represented by the build alternatives when compared to the No Build Alternative.

5.0 IMPACTS

5.1 No Build Alternative

The No Build Alternative would not involve construction of a new light rail transit project in downtown. The No Build Alternative would not include any major service improvements or new transportation infrastructure beyond what is listed in Metro's 2009 Long Range Transportation Plan (LRTP). The transit network within the project area would be largely the same as it is now.

The No Build Alternative is expected to generate less than significant direct and indirect impacts related to the following environmental issues: traffic circulation, and parking; land use; displacement and relocation; community and neighborhoods; visual and aesthetic resources; noise and vibration; ecosystems and biological resources; geotechnical, subsurface, seismic hazards, and hazardous materials; water resources; energy resources; greenhouse gas (GHG) emissions; historic resources; archaeological resources; paleontological resources; parklands and other community facilities; Section 4(f) protected resources; economic and fiscal resources; safety and security; growth; and air quality. Therefore, this alternative would not contribute to cumulative impacts with respect to these environmental resources.

5.1.1 Transit, Traffic, Circulation, and Parking

It is anticipated that the current bus service would predominantly remain the same through the year 2035 No Build Alternative with increased headways for some of the most heavily travelled lines. In addition, increases would occur along the lines that would help feed more passengers into the downtown area along the rail corridors that would be joined by the Regional Connector. Transit patrons would continue to transfer twice to the Metro Red and Purple Lines through downtown in order to make a complete east-west or north-south trip. It is expected that transit service performance through the downtown area would likely decrease due to increased traffic congestion. This may make travel via transit a less attractive option for patrons traveling across downtown between Santa Monica and the I-605 or from Azusa to Long Beach.

Cumulative transit impacts associated with the No Build Alternative would be adverse as this alternative would not close the gap in the rail transit system and would not have the travel time and convenience benefits for transit users associated with the build alternatives. For transit patrons that have no other travel options, bus travel times would increase and transit usage would be less convenient due to worsening congestion. There would be a negative transit impact upon those that rely on the public transit system, for east-west and north south travel through the downtown area. This would result in an adverse, though less than siginificant, cumulative transit impact.

5.1.2 Environmental Justice

Cumulative transit impacts associated with the No Build Alternative would be adverse as this alternative would not close the gap in the rail transit system and would not have the travel time and convenience benefits for transit users associated with the build alternatives. This adverse transit impact would result in disproportionate impacts associated with transit service equity to minority, low-income communities, but no feasible mitigation (other than construction of one of the build alternatives) exists to minimize this impact. Therefore, the No Build Alternative would result in direct, indirect, and cumulative disproportionate adverse impacts related to transit service equity.

5.2 Transportation System Management (TSM) Alternative

The TSM Alternative includes two new express shuttle bus lines linking 7th Street/Metro Center Station and Union Station above and beyond the No Build Alternative elements. These buses would run frequently, especially during peak hours. The buses may have traffic signal priority similar to the Metro Rapid system, where the traffic signal control system grants longer green lights to oncoming transit vehicles. Enhanced bus stops would be located every two to three blocks to maximize coverage of the area surrounding the routes.

Implementation of the TSM alternative would result in less than significant direct and indirect impacts related to the following environmental issues: land use; displacement and relocation; community and neighborhoods; visual and aesthetic resources; noise and vibration; ecosystems and biological resources; geotechnical, subsurface, seismic hazards, and hazardous materials; water resources; energy resources; GHG emissions; parklands and other community facilities; Section 4(f) protected resources; economic and fiscal resources; safety and security; growth; and air quality. As a result, this alternative would not contribute to cumulative impacts with respect to these environmental resources.

Operation of the two added bus routes under the TSM Alternative would result in less-than-significant impacts to energy use and energy resources. Additionally, the TSM Alternative would result in a reduction in automobile VMT and energy consumption measured in British thermal units (BTUs) when compared to the horizon year No Build Alternative. This would result in a beneficial energy impact.

5.2.1 Transit, Traffic, Circulation, and Parking

Construction of the TSM Alternative would not result in any significant impacts, and, therefore, would not contribute to cumulative construction impacts.

Operation of the TSM Alternative would have a less than significant impact on other modes of transportation (bicycle and pedestrian facilities) and, therefore, the TSM Alternative would not contribute to a cumulative impact to these transportation systems.

For the TSM Alternative, the total daily, system-wide, linked trips for the entire bus and rail system is projected to be about 1,722,400, which is a 5,300-trip increase from the No Build Alternative. The proposed alternative would improve the east-west and north-south connections between stations; however, transit patrons would have to continue to transfer through downtown in order to make a complete trip. This may make travel via transit a less attractive option for patrons traveling across downtown between Santa Monica and the I-605 or from Azusa to Long Beach.

Cumulative transit impacts associated with the TSM Alternative would be adverse as this alternative would not close the gap in the rail transit system and would not have the travel time and convenience benefits for transit users associated with the build alternatives. For transit patrons that have no other travel options, bus travel times would increase and transit usage would be less convenient due to worsening congestion. There would be a negative impact upon those that rely on the public transit system, for east-west and north-south travel through the downtown area. This would result in a less-than-significant adverse cumulative transit impact.

Projections show similar urban rail boardings compared to the No Build Alternative; however, the proposed TSM shuttle bus service is projected to carry 42,700 daily boardings. Although this alternative does not result in a negative transit impact, it is considered a marginal improvement over the No Build Alternative.

With implementation of potential mitigation measures identified in the Transportation Technical Memorandum, operation of the TSM Alternative would not result in a considerable contribution to cumulative impacts associated with traffic circulation or parking.

5.2.2 Cultural Resources – Archaeology

Construction of the TSM Alternative has the potential to affect archaeological resources within the APE, including previously unidentified archaeological resources and the Los Angeles zanja system. Implementation of potential mitigation measures identified in the Cultural Resources – Archaeology Technical Memorandum would reduce project-level impacts to previously unidentified archaeological resources to a less than significant level. Therefore, the TSM Alternative would not contribute to a cumulative impact on these resources.

5.2.3 Cultural Resources – Paleontology

Construction of the TSM Alternative has the potential to directly affect paleontological resources within the project area should excavations related to the construction of new bus stations occur in paleontologically sensitive geologic units. Implementation of potential mitigation measures identified in the Cultural Resources – Paleontology Technical Memorandum would reduce adverse impacts to a less than significant level. Therefore, the TSM Alternative would not contribute to a cumulative impact on these resources.

5.2.4 Environmental Justice

The environmental justice analysis treated potential environmental justice impacts to Little Tokyo with special attention given its historical and cultural importance. Although it has shrunk significantly in size, and most of the Japanese-American population has migrated to the suburbs, Little Tokyo remains the historical focal point for Japanese-Americans in the Los Angeles region.

Cumulative transit impacts associated with the TSM Alternative would be adverse as this alternative would not close the gap in the rail transit system and would not have the travel time and convenience benefits for transit users associated with the build alternatives. This adverse transit impact would result in disproportionate impacts associated with transit service equity and safety and security to minority and low-income communities.

Implementation of potential mitigation measures identified in the Environmental Justice Technical Memorandum would reduce potential disproportionate adverse impacts associated with safety and security to less than significant. Therefore, the TSM Alternative would not contribute to disproportionate cumulative impacts associated with safety and security. However, no feasible mitigation exists (other than construction of either of the two build alternatives) that would minimize the transit service equity impacts. Therefore, the TSM Alternative would result in disproportionate cumulative adverse impacts related to transit service equity.

5.3 At-Grade Emphasis LRT Alternative

The At-Grade Emphasis LRT Alternative extends from the underground 7th Street/Metro Center Station, heads north under Flower Street, resurfaces to at-grade north of 4th Street, crosses 3rd Street at-grade, enters Bunker Hill, and turns northeast through a new entrance to the existing 2nd Street tunnel. The new underground portions of the alignment would be constructed using the cut and cover method, which is described in detail in the Description of Construction. After entering the 2nd Street tunnel, the alignment continues along 2nd Street and it splits into an at-grade couplet configuration traveling north on Main and Los Angeles Streets (one track on each roadway). Then it heads east on Temple Street, realigns into a dual track configuration just east of Los Angeles Street, and connects to the Metro Gold Line to East Los Angeles in a 3-way junction north of the Little Tokyo/Arts District Station on Alameda Street. Due to the high volume of heavy regional auto and truck traffic that travels along Alameda Street, an automobile underpass and a potential pedestrian overpass would be constructed at the intersection of Temple and Alameda Streets to reduce pedestrian-train and automobile-train conflicts.

Implementation of the At-Grade Emphasis LRT Alternative is not anticipated to contribute to an adverse cumulative effect related to the following environmental issues: land use; visual or

aesthetic resources; water resources; energy resources; GHG emissions; parklands or other community facilities; or cause growth inducement.

The alignment passes near several potential development sites, and plans for these sites include high density employment and residential facilities. The At-Grade Emphasis LRT Alternative combined with other projects could also support increases in residential development within the project area which would be a beneficial land use effect.

Implementation of the At-Grade Emphasis LRT Alternative would result in a decrease in highway VMT, which would subsequently result in a net decrease in energy consumption measured in both BTU's and barrels of oil. This net decrease in BTUs and barrels of oil would result in a beneficial impact to energy resources.

Potential beneficial economic impacts associated with the At-Grade Emphasis LRT Alternative include improved accessibility and mobility for the region, which would potentially encourage greater economic activity; and beneficial impacts for businesses and employees traveling to and from work.

5.3.1 Transit, Traffic, Circulation, and Parking

During construction of the At-Grade Emphasis LRT Alternative, temporary lane closures and/or street closures, relocation of bus stops, temporary removal of several parking and loading stalls, and temporary sidewalk closures may occur. However, light rail service would be maintained during construction of the alternative. Even with implementation of possible mitigation, construction of the alternative would result in significant and unavoidable impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements. Therefore, the At-Grade Emphasis LRT Alternative could result in a considerable contribution to cumulative construction impacts.

Operation of the At-Grade Emphasis LRT Alternative would have a less than significant impact on transit systems and would not result in a cumulative impact to transit systems. This alternative proposes a light rail alignment to provide a link between the 7th Street/Metro Center Station and Metro Gold Line at Temple and Alameda Streets. This connection would provide a direct east-west route between the I-605 and the City of Santa Monica and a direct north-south route between the Cities of Azusa and Long Beach. Consequently, transit patrons could travel from east-west or north-south without having to make a transfer in the downtown area. Additionally, the At-Grade Emphasis LRT Alternative would result in a significant beneficial impact to transit systems compared to the No Build and TSM Alternatives.

Development of the At-Grade Emphasis LRT Alternative would result in the permanent removal of 80 on-street parking and loading spaces. In addition, the reduction in travel lanes associated with operation of the alternative would impact bikeways and pedestrian crosswalks and sidewalks. With implementation of possible mitigation identified in the Transportation

Technical Memorandum, the At-Grade Emphasis LRT Alternative would not result in a considerable contribution to cumulative impacts associated with parking or other modes of transportation (bicycle and pedestrian facilities).

Under the year 2035 traffic forecasts for the At-Grade Emphasis LRT Alternative, a total of 18 intersections during the AM peak hour and 26 intersections during the PM peak hour would be impacted. During the AM peak hour, seven intersections could be mitigated to a level of insignificance. During the PM peak hour, 11 intersections could be mitigated to a level of insignificance. Therefore, the At-Grade Emphasis LRT Alternative would not contribute to cumulative impacts at these intersections. After implementation of the proposed mitigation measures, significant impacts would remain at the 11 of the 26 impacted intersections during the AM peak hour and 15 intersections during the PM peak hour. Operation of the At-Grade Emphasis LRT Alternative would result in a considerable contribution to significant cumulative impacts at 11 intersections during the AM peak hour and 15 intersections during the PM peak hour. Please refer to the Transportation Technical Memorandum for more information regarding impacted intersections.

It should be noted, a number of intersections would improve with operation of the At-Grade Emphasis LRT Alternative over the No Build Alternative by virtue of a reduction in delay. During the AM peak hour seven intersections show delay improvements and eight intersections show delay improvements in the PM peak hour.

5.3.2 Displacement and Relocation

By the year 2019, planned future developments would displace several existing parking lots. These new developments, mostly residential, would provide the required parking for their residents, but the stock of publicly accessible parking would be greatly reduced. The At-Grade Emphasis LRT Alternative would result in permanent displacement of 170 parking spaces (including 47 on-street parking spaces), 23 spaces in Little Tokyo, where the community has expressed concern over the potential loss of parking. Surface parking lots in downtown Los Angeles are an important community resource because many of the older, historical and civic buildings do not provide the amount of on-site, off-street parking required under current planning code, resulting in an overall parking deficit. The loss of publicly accessible surface parking in Little Tokyo and in other downtown Los Angeles areas due to the At-Grade Emphasis LRT Alternative in conjunction with other planned developments would not represent a cumulative loss with respect to parking. Other potential effects are discussed under environmental justice (Section 5.3.12).

Typically, transit projects themselves serve as mitigation for the loss of parking because they would remove vehicles on the road, thereby reducing the demand for parking. The Regional Connector will provide new non-auto access to downtown, including Little Tokyo. Therefore,

the proposed At-Grade Emphasis LRT Alternative would partially offset potential adverse impacts due to loss of parking.

5.3.3 Community and Neighborhood

The At-Grade Emphasis LRT Alternative would result in a beneficial cumulative impact to community mobility, population, housing and employment, and is not anticipated to contribute to any adverse cumulative effects with respect to viability of existing businesses or emergency services. With implementation of potential mitigation measures identified in the Community and Neighborhood Impacts Technical Memorandum, the At-Grade Emphasis LRT Alternative would not adversely contribute to cumulative impacts with regards to public health, safety, crime, community resources, or events.

5.3.4 Noise and Vibration

Project-level noise and vibration impacts from operation of the At-Grade Emphasis LRT Alternative would be less than significant and would not contribute to cumulative noise or vibration impacts.

Compliance with Section 41.40(a) of the Los Angeles Municipal Code and any variance to the Code would ensure that noise and vibration levels associated with construction of the At-Grade Emphasis LRT Alternative would not result in an adverse impact. However, sensitive and/or historic buildings within 21 feet of the construction may be susceptible to vibration damage. Implementation of potential mitigation measures would reduce potentially significant project-level impacts to sensitive or historic buildings, within 21 feet of construction, to a less than significant level. With implementation of potential mitigation measures identified in the Noise and Vibration Technical Memorandum, construction of the At-Grade Emphasis LRT Alternative would not contribute to potentially adverse cumulative noise or vibration impacts.

5.3.5 Ecosystems and Biological Resources

Construction activities associated with future projects within the project area have the potential to affect migratory birds if nesting habitat is disturbed during the breeding season. Other ongoing and future construction projects would be required to implement potential mitigation measures to address any potential impacts to migratory birds under either the Migratory Bird Treaty Act or the California Fish and Game Code. There would be no cumulative impacts from the At-Grade Emphasis LRT Alternative with respect to biological resources.

5.3.6 Geotechnical/Subsurface/Seismic/Hazardous Materials

There is the potential for cumulative impacts associated with hazards and hazardous materials from the At-Grade Emphasis LRT Alternative. A number of related construction

projects have been identified and some of those projects could involve ground-disturbing construction where there is potential to encounter hazardous materials in soil and/or groundwater. In addition, other construction activities in the project area may entail building demolition, with the potential for release of asbestos fibers from asbestos containing materials and lead particles from lead-based paint. The additive effect of on-going and future activities could result in cumulative impacts to human health or the environment through release of hazardous materials. While these construction activities would require compliance with applicable hazardous waste laws and regulations, potential mitigation measures would also ensure cumulative impacts would be less than significant.

5.3.7 Cultural Resources – Built Environment

Construction of the At-Grade Emphasis LRT Alternative would potentially result in one direct significant impact and 14 indirect significant impacts to historical resources. All of these potential impacts could result in a substantial adverse change to a historical resource. Implementation of mitigation measures identified in Cultural Resources – Built Environment Technical Memorandum would reduce these potential impacts to a less than significant level. Project operation is not expected to cause direct or indirect impacts. Therefore, this alternative would not contribute to cumulative impacts on historic resources.

5.3.8 Cultural Resources – Archaeology

Construction of the At-Grade Emphasis LRT Alternative has the potential to affect archaeological resources within the APE, including previously unidentified archaeological resources and previously undiscovered portions of site RC-1. However, implementation of potential mitigation measures identified in that technical memorandum would reduce this potential impact to a less than significant level and this alternative would not contribute to cumulative impacts on these resources.

5.3.9 Cultural Resources – Paleontology

The At-Grade Emphasis LRT Alternative has the potential to adversely impact paleontological resources within the project area as a result of ground disturbance related to constructing new underground tunnel segments on Flower Street between 7th and Hope Streets and new stations. However, implementation of potential mitigation measures identified in Cultural Resources – Paleontology Technical Memorandum would reduce potential adverse impacts to a less than significant level. Therefore, the At-Grade Emphasis LRT Alternative would not contribute to a cumulative impact on these paleontological resources.

5.3.10 Economic and Fiscal

Implementation of mitigation measures identified in the Economic and Fiscal Impacts Technological Memorandum, such as compensation to property owners and business owners, would lessen potential construction impacts. Dependent upon the successful

implementation of mitigation where required during construction, some residual impacts could still occur during construction. Given the related projects that could be under construction during the same time as the proposed alternative, construction of the alternative could result in a considerable contribution to cumulative impacts on activity levels and revenue of businesses along the alignment. All other economic impacts on property tax, economic output, and employment associated with construction and operation of the alternative would be less than significant. Therefore, At-Grade Emphasis LRT Alternative would not contribute to a cumulative economic impact.

Potential beneficial economic impacts associated with the At-Grade Emphasis LRT Alternative include indirect and direct employment growth, with the potential to add 13,800 employees to the area economy; improved accessibility and mobility for the region, which would potentially encourage greater economic activity; and benefits for businesses and employees traveling to and from work.

5.3.11 Safety and Security

Potential cumulative impacts of the At-Grade Emphasis LRT Alternative were qualitatively assessed in parallel to other known projects out to the baseline year (year 2035). Within the area of influence of this proposed alternative, there are a variety of major renovations to existing buildings, new facility construction, transportation projects, and mixed use developments under consideration. However, each of these projects would address safety and security of pedestrians and motorists accessing the developments. From a cumulative perspective, potential impacts associated with the At-Grade Emphasis LRT Alternative would be mitigated to a less-than-significant level and not have a cumulative effect on the safety and security environment in the project area. Please refer to the Safety and Security Technical Memorandum for potential mitigation measures related to the At-Grade Emphasis LRT Alternative.

5.3.12 Environmental Justice

The environmental justice analysis treated potential environmental justice impacts to Little Tokyo with special attention given its historical and cultural importance. Although it has shrunk significantly in size, and most of the Japanese-American population has migrated to the suburbs, Little Tokyo remains the historical focal point for Japanese-Americans in the Los Angeles region.

The At-Grade Emphasis LRT Alternative would result in the following disproportionate potential cumulative impacts: loss of parking in Little Tokyo and impacts to community cohesion/viability of Little Tokyo due to parking losses. Implementation of possible mitigation measures included in the Environmental Justice Technical Memorandum would reduce the project's contribution to disproportionate cumulative impacts associated with these environmental topics to a less than significant level.

5.3.13 Air Quality Impacts and Health Risk Assessment

Operational emissions for the At-Grade Emphasis LRT Alternative would be less than significant under both CEQA and NEPA thresholds. Regional construction emissions of VOC, NOx, CO, and $PM_{2.5}$ would result in significant air quality impacts under CEQA. Even with required up-to-date (2014 to 2017) equipment during construction as mitigation, regional construction emissions would remain significant and unavoidable.

Although regional construction emissions under the At-Grade Emphasis LRT Alternative would be significant and unavoidable, operation of the alternative would reduce regional VMT, which would result in a beneficial impact to air quality and outweigh the temporary adverse construction impacts.

5.4 Underground Emphasis LRT Alternative

The Underground Emphasis LRT Alternative would connect directly to the tracks at 7th Street/Metro Center Station and continue north underneath Flower Street to 3rd Street and then northeast to 2nd and Hope Streets. Tracks would then proceed east underneath the 2nd Street tunnel and 2nd Street to Central Avenue. Tracks would then veer north into a new portal on the private property bounded by 1st Street, Alameda Street, 2nd Street, and Central Avenue. The tracks would then enter the intersection of 1st and Alameda Streets in the same type of three-way junction planned for the At-Grade Emphasis LRT Alternative, with a potential pedestrian overpass and a vehicular underpass for through traffic on Alameda Street.

Implementation of the Underground Emphasis LRT Alternative is not anticipated to contribute to an adverse cumulative effects related to the following environmental issues: land use; visual or aesthetic resources; water resources; energy resources; GHG emissions; parklands and other community facilities; Section 4(f) protected resources; or growth inducement.

The alignment passes near several potential development sites, and plans for these sites include high density employment and residential facilities. The Underground Emphasis LRT Alternative combined with other projects could also support increases in residential development within the project area which would be a beneficial land use effect.

Implementation of the Underground Emphasis LRT Alternative would result in a decrease in highway VMT, which would subsequently result in a net decrease in energy consumption measured in both BTU's and barrels of oil. This net decrease in BTUs and barrels of oil would result in a beneficial impact to energy resources.

Potential beneficial economic impacts associated with the Underground Emphasis LRT Alternative include improved accessibility and mobility for the region, which would potentially

encourage greater economic activity; and beneficial impacts for businesses and employees traveling to and from work.

5.4.1 Transit, Traffic, Circulation, and Parking

During construction of the Underground Emphasis LRT Alternative, temporary lane closures and/or street closures, relocation of bus stops, temporary removal of several parking and loading stalls, and temporary sidewalk closures may occur. However, light rail service would be maintained during construction of the alternative. Even with implementation of possible mitigation, construction of the Underground Emphasis LRT Alternative would result in significant and unavoidable construction impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements. Therefore, the Underground Emphasis LRT Alternative could result in a considerable contribution to cumulative construction impacts.

Operation of the Underground Emphasis LRT Alternative would have a less than significant impact on transit systems and would not result in a cumulative impact to transit systems. This alternative proposes a light rail alignment to provide a link between the 7th Street/Metro Center Station and Metro Gold Line at the Little Tokyo/Arts District Station. This connection would provide a direct east-west route between the I-605 and the City of Santa Monica and a direct north-south route between the Cities of Azusa and Long Beach. Consequently, transit patrons could travel from east-west or north-south without having to make a transfer in the downtown area. Additionally, the Underground Emphasis LRT Alternative would result in a significant beneficial impact to the regional transit system compared to the No Build and TSM Alternatives.

Development of the Underground Emphasis LRT Alternative would result in the permanent removal of 20 on-street parking and loading spaces. With implementation of possible mitigation identified in the Transportation Technical Memorandum, the Underground Emphasis LRT Alternative would not result in a considerable contribution to cumulative impacts associated with parking or other modes of transportation (bicycle and pedestrian facilities).

Under the year 2035 traffic forecasts for the Underground Emphasis LRT Alternative, a total of three intersections would be impacted during the AM peak hour and seven intersections would be impacted during the PM peak hour. During the AM peak hour, one intersection would be mitigated to a less than significant level. During the PM peak hour, four intersections would be mitigated to a less than significant level. Therefore, the Underground Emphasis LRT Alternative would not contribute to cumulative impacts at these intersections. After implementation of the proposed mitigation measures, significant impacts would remain at two intersections (Alameda St./2nd St. and Flower St./4th St.) during the AM peak hour and three intersections (Judge John Aiso St./1st St., Alameda St./2nd St., and Judge John Aiso

St./Temple St.) during the PM peak hour. In summary, operation of the Underground Emphasis LRT Alternative would result in a considerable contribution to significant cumulative impacts at two intersections during the AM peak hour and three intersections during the PM peak hour. Please refer to the transportation Technical Memorandum for more information regarding cumulatively impacted intersections.

It should be noted, a number of intersections would improve under the Underground Emphasis LRT Alternative from the No Build Alternative by virtue of a reduction in delays. During the AM peak hour five intersections show delay improvements and eight intersections show delay improvements in the PM peak hour. It should also be noted that the inclusion of the Regional Connector would increase the person-carrying capacity through the downtown transportation environment without adversely impacting overall traffic operations.

5.4.2 Displacement and Relocation

By the year 2019, related projects would displace several current parking lots. These new developments, mostly residential, would provide the required parking for their tenants, but the stock of publicly accessible parking would be reduced.

The Underground Emphasis LRT Alternative could permanently displace between 148 and 281 parking spaces. Of these displaced parking spaces, 139 of them would be in Little Tokyo, where the community has expressed concern over the potential loss of parking. The displaced parking spaces would be replaced in an existing lot.

Surface parking lots in downtown Los Angeles are an important community resource. The loss of publicly accessible surface parking in Little Tokyo due to the proposed project would represent a cumulative loss with respect to parking. Other potential effects are discussed under environmental justice (Section 5.4.12). Transit projects themselves typically serve as mitigation for the loss of parking because they reduce dependence on vehicles on the road, thereby reducing the demand for parking. The Regional Connector would provide new non-auto access to downtown, including Little Tokyo. Therefore, the Underground Emphasis LRT Alternative would partially offset potential adverse impacts due to loss of parking.

5.4.3 Community Neighborhood

The Underground Emphasis LRT Alternative would result in a beneficial cumulative impact to community mobility, population, housing and employment, and is not anticipated to contribute to any adverse cumulative effects with respect to viability of existing businesses or emergency services. With implementation of the potential mitigation measures identified in the Community and Neighborhood Impacts Technical Memorandum, the Underground Emphasis LRT Alternative would not adversely contribute to cumulative impacts with regards to public health, safety, crime, community resources, or events.

5.4.4 Noise and Vibration

Project-level noise and vibration impacts from operation of the Underground Emphasis LRT Alternative would be less than significant. Operation of the Underground Emphasis LRT Alternative would not contribute to cumulative noise or vibration impacts.

Compliance with Section 41.40(a) of the Los Angeles Municipal Code and any variance to the Code would ensure that noise and vibration levels associated with construction of the Underground Emphasis LRT Alternative would not result in an adverse impact. However, sensitive and/or historic buildings within 21 feet of the construction may be susceptible to vibration damage. Implementation of potential mitigation measures would reduce potentially significant project-level impacts to sensitive or historic buildings, within 21 feet of construction, to a less than significant level. With implementation of potential mitigation measures identified in the Noise and Vibration Technical Memorandum, construction of the Underground Emphasis LRT Alternative would not contribute to potentially adverse cumulative noise or vibration impacts.

5.4.5 Ecosystems and Biological Resources

Construction activities associated with future projects within the project area have the potential to affect migratory birds if nesting habitat is disturbed during the breeding season. Other ongoing and future construction projects would be required to implement mitigation measures to address any potential impacts to migratory birds under either the Migratory Bird Treaty Act or the California Fish and Game Code. There would be no cumulative impacts from the Underground Emphasis LRT Alternative with respect to biological resources.

5.4.6 Geotechnical/Subsurface/Seismic/Hazardous Materials

There is the potential for cumulative impacts associated with hazards and hazardous materials from the Underground Emphasis LRT Alternative. Construction associated with on-going and future projects in the project area could result in cumulative impacts to human health or the environment through release of hazardous materials encountered in soil and/or groundwater, or released during building demolition. Compliance with applicable hazardous waste laws and regulations, along with potential mitigation measures identified in the Geotechnical/Subsurface/Seismic/Hazardous Materials Technical Memorandum, would ensure these potential cumulative impacts would be less than significant.

5.4.7 Cultural Resources – Built Environment

Implementation of potential mitigation measures identified in Cultural Resources – Built Environment Technical Memorandum would reduce potential impacts to historic resources to a less than significant level. This alternative would not contribute to cumulative impacts on historic resources. See the Cultural Resources – Built Environment Technical Memorandum for more information on specific historic resources.

5.4.8 Cultural Resources – Archaeology

Construction of the Underground Emphasis LRT Alternative has the potential to affect archaeological resources within the APE, including previously unidentified archaeological resources, the Los Angeles zanja system, and site CA-LAN-3588. However, implementation of potential mitigation measures identified in Cultural Resources – Archaeology Technical Memorandum would reduce this potential impact to a less than significant level. Therefore, this alternative would not contribute to cumulative impacts on these resources.

5.4.9 Cultural Resources – Paleontology

The Underground Emphasis LRT Alternative involves ground disturbance, and therefore has potential to adversely affect paleontological resources within the project area. This disturbance would result from excavations to construct a new underground tunnel along the alternative's entire route, underground stations, and a proposed pedestrian bridge at the intersection of Alameda and 1st Streets. However, implementation of potential mitigation measures identified in Cultural Resources – Paleontology Technical Memorandum would reduce impacts to paleontological resources to below level of significance. Therefore, the Underground Emphasis LRT Alternative would not contribute to a cumulative impact on paleontological resources.

5.4.10 Economic and Fiscal

Implementation of mitigation measures identified in the Economic and Fiscal Impacts Technological Memorandum, such as compensation to property owners and business owners, would lessen potential construction impacts. Dependent upon the successful implementation of mitigation where required during construction, some residual impacts could still occur during construction. Given the related projects that could be under construction during the same time as the proposed alternative, construction of the alternative could result in a considerable contribution to cumulative impacts on activity levels and revenue of businesses along the alignment. All other potential economic impacts on property tax, economic output, and employment associated with construction and operation of the alternative would be less than significant and the Underground Emphasis LRT Alternative would not contribute to a cumulative economic impact.

Beneficial economic impacts associated with the Underground Emphasis LRT Alternative include indirect and direct employment growth, with the potential to add 20,800 employees to the area economy; improved accessibility and mobility for the region, which would potentially encourage greater economic activity; and benefits for businesses and employees traveling to and from work.

5.4.11 Safety and Security

Potential cumulative impacts of the Underground Emphasis LRT Alternative are qualitatively assessed in parallel to other known projects out to the baseline year (year 2035). Within the area of influence of this proposed alternative, there are a variety of major renovations to existing buildings, new facility construction, transportation projects, and mixed-use developments under consideration. Each of these projects would address the safety and security of pedestrians and motorists accessing the developments. From a cumulative perspective, potential impacts associated with the Underground Emphasis LRT Alternative would be mitigated to a less than significant level and they would not have a cumulative effect on the safety and security environment in the project area. Please refer to the Safety and Security Technical Memorandum for a description of potential mitigation measures.

5.4.12 Environmental Justice

The environmental justice analysis treated potential environmental justice impacts to Little Tokyo with special attention given its historical and cultural importance. Although it has shrunk significantly in size, and most of the Japanese-American population has migrated to the suburbs, Little Tokyo remains the historical focal point for Japanese-Americans in the Los Angeles region.

The Underground Emphasis LRT Alternative would result in the following disproportionate cumulative impacts: loss of parking in Little Tokyo and impacts to community cohesion/viability of Little Tokyo due to parking losses. Implementation of possible mitigation measures included in the Environmental Justice Technical Memorandum would reduce the project's contribution to potential disproportionate cumulative impacts to a less than significant level.

5.4.13 Air Quality Impacts and Health Risk Assessment

Operational emissions for the Underground Emphasis LRT Alternative would be less than significant under both CEQA and NEPA thresholds. Regional construction emissions of VOC, NOx, CO, and $PM_{2.5}$ would result in significant air quality impacts under CEQA. Even with required up-to-date (2014 to 2017) equipment during construction as mitigation, regional construction emissions would remain significant and unavoidable.

Although regional construction emissions under the Underground Emphasis LRT Alternative would be significant and unavoidable, operation of the alternative would reduce regional VMT, which would result in a beneficial impact to air quality and outweigh temporary adverse construction impacts.

5.5 Fully Underground LRT Alternative – Little Tokyo Variation 1

The Fully Underground LRT Alternative - Little Tokyo Variation 1 would connect directly to the tracks at 7th Street/Metro Center Station and continue north underneath Flower Street to 3rd Street and northeast to 2nd and Hope Streets. Tracks would then proceed east underneath the 2nd Street tunnel and 2nd Street to Central Avenue. Tracks would then veer north beneath the private property bounded by 1st, Alameda, and 2nd Streets, and Central Avenue. Next, the tracks would enter a junction beneath the intersection of 1st and Alameda Streets.

From the junction, the track would diverge into two directions. One set of tracks bound for Azusa would proceed north and rise through a portal just northeast of the intersection of Temple and Alameda Streets. Here, the track would connect to the Metro Gold Line LRT bridge over US 101. Another set of tracks, bound for the San Gabriel Valley, would proceed east from the junction and rise through a new portal in the middle of 1st Street between Alameda and Hewitt Streets. These tracks would connect to the existing Metro Gold Line to East Los Angeles tracks.

Implementation of the Fully Underground LRT Alternative – Little Tokyo Variation 1 is not anticipated to contribute to an adverse cumulative effect related to the following environmental issues: land use; visual or aesthetic resources; water resources; energy resources; GHG emissions; parklands and other community facilities; Section 4(f) protected parks, recreation areas, or refuges; or growth inducement.

The alignment passes near several potential development sites, and plans for these sites include high density employment and residential facilities. The Fully Underground LRT Alternative – Little Tokyo Variation 1 combined with other projects could also support increases in residential development within the project area which would also be a beneficial land use effect.

Implementation of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would result in a decrease in highway VMT, which would subsequently result in a net decrease in energy consumption as measured in both BTU's and barrels of oil. This net decrease in BTUs and barrels of oil would result in a beneficial impact to energy resources.

Potential beneficial economic impacts associated with the Fully Underground LRT Alternative – Little Tokyo Variation 1 include improved accessibility and mobility for the region, which would potentially encourage greater economic activity; and beneficial impacts for businesses and employees traveling to and from work.

5.5.1 Transit, Traffic, Circulation, and Parking

During construction of the Fully Underground LRT Alternative – Little Tokyo Variation 1, temporary lane closures and/or street closures, relocation of bus stops, temporary removal of

several parking and loading stalls, and temporary sidewalk closures may occur. However, light rail service would be maintained during construction of the alternative. Even with implementation of possible mitigation, construction of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would result in significant and unavoidable construction impacts to bus transit, traffic circulation, and pedestrian and bicycle movements. Therefore, the Fully Underground LRT Alternative – Little Tokyo Variation 1 could result in a considerable contribution to cumulative construction impacts.

Operation of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would have a less than significant impact on transit systems and parking and, therefore, would not result in a cumulative impact to these resources. This alternative proposes a light rail alignment to provide a link between the 7th Street/Metro Center Station and Metro Gold Line at 1st and Alameda Streets. This connection would provide a direct east-west route between the I-605 and the City of Santa Monica and a direct north-south route between the Cities of Azusa and Long Beach. Consequently, transit patrons could travel from east-west or north-south without having to make a transfer in the downtown area. Additionally, the Fully Underground LRT Alternative – Little Tokyo Variation 1 would result in a significant beneficial impact to transit systems compared to the No Build and TSM Alternatives.

With implementation of possible mitigation identified in the Transportation Technical Memorandum, the Fully Underground LRT Alternative – Little Tokyo Variation 1 would not contribute to cumulative impacts associated with other modes of transportation (bicycle and pedestrian facilities).

Under the year 2035 traffic forecasts for the Fully Underground LRT Alternative – Little Tokyo Variation 1, one intersection would be impacted during the AM peak hour and three intersections would be impacted during the PM peak hour. During the PM peak hour, all three intersections would be mitigated to a less than significant level. Therefore, the Fully Underground LRT Alternative – Little Tokyo Variation 1 would not contribute to cumulative impacts at these intersections during the PM peak hour. After implementation of the proposed mitigation measures, significant impacts would remain at one intersection during the AM peak hour. In summary, operation of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would result in a considerable contribution to significant cumulative impacts at one intersection (Flower Street/ 4th Street) during the AM peak hour. Please refer to the Transportation Technical Memorandum for more information regarding cumulatively impacted intersections.

It should be noted, a number of intersections would improve under the Fully Underground LRT Alternative – Little Tokyo Variation 1 compared to the No Build Alternative by virtue of a reduction in delays. During the AM peak hour, four intersections show delay improvements and seven intersections show delay improvements in the PM peak hour. It should also be noted that the inclusion of the Regional Connector would increase the person-carrying

capacity through the downtown transportation environment without adversely impacting overall traffic operations.

5.5.2 Displacement and Relocation

Cumulative impacts under the Fully Underground LRT Alternative – Little Tokyo Variation 1 would be similar to those under the Underground Emphasis LRT Alternative and potential mitigation measures would also be similar. The Fully Underground LRT Alternative – Little Tokyo Variation 1 would greatly enhance non-auto access by rail to downtown and Little Tokyo. This would partly offset some of the potential loss of parking in the downtown area. Therefore, this alternative would partly self-mitigate potential cumulative impacts associated with displacement and relocation.

5.5.3 Community and Neighborhoods

The Fully Underground LRT Alternative – Little Tokyo Variation 1 would result in a beneficial cumulative impact to community mobility, population, housing and employment, and would not contribute to any adverse cumulative effects with respect to viability of existing businesses or emergency services. With implementation of potential mitigation measures identified in the Community and Neighborhood Impacts Technical Memorandum, the Fully Underground LRT Alternative – Little Tokyo Variation 1 would not adversely contribute to cumulative impacts with regards to public health, safety, crime, community resources, or events.

5.5.4 Noise and Vibration

Project-level noise and vibration impacts from operation of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would be less than significant. As a result, operation of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would not contribute to cumulative noise or vibration impacts.

Compliance with Section 41.40(a) of the Los Angeles Municipal Code and any variance to the Code would ensure that noise and vibration levels associated with construction of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would not result in an adverse impact. However, sensitive and/or historic buildings within 21 feet of the construction may be susceptible to vibration damage. Implementation of potential mitigation measures would reduce potentially significant project-level impacts to sensitive or historic buildings within 21 feet of construction to a less than significant level. With implementation of potential mitigation measures identified in the Noise and Vibration Technical Memorandum, construction of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would not contribute to potentially adverse cumulative noise or vibration impacts.

5.5.5 Ecosystems and Biological Resources

Construction activities associated with future projects within the project area have the potential to affect migratory birds if nesting habitat is disturbed during the breeding season. Other ongoing and future construction projects would be required to implement mitigation measures to address any potential impacts to migratory birds under either the Migratory Bird Treaty Act or the California Fish and Game Code. Therefore, there would be no cumulative impacts from the Fully Underground LRT Alternative – Little Tokyo Variation 1 with respect to biological resources.

5.5.6 Geotechnical/Subsurface/Seismic/Hazardous Materials

Cumulative impacts from the Fully Underground LRT Alternative – Little Tokyo Variation 1 could occur if there were a release of hazardous materials during on-going and future projects in the project area that resulted in cumulative impacts to human health or the environment. Compliance with applicable hazardous waste laws and regulations, along with potential mitigation measures identified in the Geotechnical/Subsurface/Seismic/Hazardous Materials Technical Memorandum, would ensure these potential cumulative impacts would be less than significant.

5.5.7 Cultural Resources – Built Environment

Implementation of potential mitigation measures identified in Cultural Resources – Built Environment Technical Memorandum would reduce impacts to historic resources to a less than significant level. Therefore, this alternative would not contribute to cumulative impacts on historic resources. Please refer to the Cultural Resources – Built Environment Technical Memorandum for more information about specific historic resources.

5.5.8 Cultural Resources – Archaeology

Construction of the Fully Underground LRT Alternative – Little Tokyo Variation 1 has the potential to affect archaeological resources within the APE, including previously unidentified archaeological resources, the Los Angeles zanja system, and sites CA-LAN-3588, P-19-003338, and P-19-003339. However, implementation of potential mitigation measures identified in Cultural Resources – Archaeology Technical Memorandum would reduce this potential impact to a less than significant level. Therefore, this alternative would not contribute to cumulative impacts on these resources.

5.5.9 Cultural Resources – Paleontology

Fully Underground LRT Alternative - Little Tokyo Variation 1 involves ground disturbance and, therefore, has the potential to adversely impact paleontological resources within the project area. This disturbance would result from excavations to construct an entirely underground tunnel located east from the 7th Street/Metro Center Station to the intersection of 1st and Alameda Streets and four underground stations. However, implementation of potential

mitigation measures identified in Cultural Resources – Paleontological Technical Memorandum would reduce adverse impacts to paleontological resources to below the level of significance. Therefore, the Fully Underground LRT Alternative - Little Tokyo Variation 1 would not contribute to a cumulative impact on paleontological resources.

5.5.10 Economic and Fiscal

Implementation of mitigation measures identified in the Economic and Fiscal Impacts Technological Memorandum, such as compensation to property owners and business owners, would lessen potential construction impacts. Dependent upon the successful implementation of mitigation where required during construction, some residual impacts could still occur during construction. Given the related projects that could be under construction during the same time as the proposed alternative, construction of the alternative could result in a considerable contribution to cumulative impacts on activity levels and revenue of businesses along the alignment. All other potential economic impacts on property tax, economic output, and employment associated with construction and operation of the alternative would be less than significant and the Fully Underground LRT Alternative – Little Tokyo Variation 1 would not contribute to a cumulative economic impact.

Beneficial economic impacts associated with the Fully Underground LRT Alternative – Little Tokyo Variation 1 include indirect and direct employment growth, with the potential to add 23,500 employees to the area economy; improved accessibility and mobility for the region, which would potentially encourage greater economic activity and benefits for businesses; and employees traveling to and from work.

5.5.11 Safety and Security

Potential cumulative impacts of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would be similar to the Underground Emphasis LRT Alternative. From a cumulative perspective, potential impacts associated with the Fully Underground LRT Alternative – Little Tokyo Variation 1 would be mitigated to a less than significant level and would not have a cumulative effect on the safety and security environment in the project area. Please refer to the Safety and Security Technical Memorandum for the Fully Underground LRT Alternative – Little Tokyo Variation 1 potential mitigation measures.

5.5.12 Environmental Justice

The environmental justice analysis treated potential environmental justice impacts to Little Tokyo with special attention given its historical and cultural importance. Although it has shrunk significantly in size, and most of the Japanese-American population has migrated to the suburbs, Little Tokyo remains the historical focal point for Japanese-Americans in the Los Angeles region.

The Fully Underground LRT Alternative – Little Tokyo Variation 1 would result in the following disproportionate cumulative impacts: loss of parking in Little Tokyo and impacts to community cohesion/viability of Little Tokyo due to parking losses. Implementation of possible mitigation as described in the Environmental Justice Technical Memorandum would reduce the project's contribution to potential disproportionate cumulative impacts to a less than significant level.

5.5.13 Air Quality Impacts and Health Risk Assessment

Operational emissions for the Fully Underground LRT Alternative – Little Tokyo Variation 1 would be less than significant under both CEQA and NEPA thresholds. Regional construction emissions of VOC, NOx, CO, and $PM_{2.5}$ would result in significant air quality impacts under CEQA. Even with required up-to-date (2014 to 2017) equipment during construction as mitigation, regional construction emissions would remain significant and unavoidable.

Although regional construction emissions under the Fully Underground LRT Alternative – Little Tokyo Variation 1 would be significant and unavoidable, operation of the alternative would reduce regional VMT, which would result in a beneficial impact to air quality and outweigh the temporary adverse construction impacts.

5.6 Fully Underground LRT Alternative – Little Tokyo Variation 2

The Fully Underground LRT Alternative - Little Tokyo Variation 2 would connect directly to the tracks at 7th Street/Metro Center Station and continue north underneath Flower Street to 3rd Street and then northeast to 2nd and Hope Streets. Tracks would then proceed east underneath the 2nd Street tunnel and 2nd Street to Central Avenue. Tracks would then veer north beneath the private property bounded by 1st, Alameda, and 2nd Streets and Central Avenue. The tracks would then enter a junction beneath the intersection of 1st and Alameda Streets.

From the junction, the track would diverge into two sets. One set of tracks bound for Azusa would proceed north and rise through a portal just northeast of the intersection of Temple and Alameda Streets. Here, the track would connect to the Metro Gold Line LRT bridge over US 101. Another set of tracks, bound for the San Gabriel Valley, would proceed east from the junction and each rising in a separate portal in the middle of 1st Street between Alameda and Hewitt Streets. These tracks would connect to the existing Metro Gold Line.

Implementation of the Fully Underground LRT Alternative – Little Tokyo Variation 2 is not anticipated to contribute to an adverse cumulative effect related to the following environmental issues: land use; visual or aesthetic resources; water resources; energy resources; GHG emissions; parklands and other community facilities; or growth inducement.

The alignment passes near several potential development sites, and plans for these sites include high density employment and residential facilities. The Fully Underground LRT Alternative – Little Tokyo Variation 2 combined with other projects could also support increases in residential development within the project area which would also be a beneficial land use effect.

Implementation of the Fully Underground LRT Alternative – Little Tokyo Variation 2 would result in a decrease in highway VMT, which would subsequently result in a net decrease in energy consumption as measured in both BTU's and barrels of oil. This net decrease in BTUs and barrels of oil would result in a beneficial impact to energy resources.

Potential beneficial economic impacts associated with the Fully Underground LRT Alternative – Little Tokyo Variation 2 include improved accessibility and mobility for the region, which would potentially encourage greater economic activity; and beneficial impacts for businesses and employees traveling to and from work.

5.6.1 Transit, Traffic, Circulation, and Parking

During construction of the Fully Underground LRT Alternative – Little Tokyo Variation 2, temporary lane closures and/or street closures, relocation of bus stops, temporary removal of several parking and loading stalls, and temporary sidewalk closures may occur. However, light rail service would be maintained during construction of the alternative. Even with implementation of possible mitigation, construction of the Fully Underground LRT Alternative – Little Tokyo Variation 2 would result in significant and unavoidable construction impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements. Therefore, the alternative could result in a considerable contribution to cumulative construction impacts.

Operation of the Fully Underground LRT Alternative – Little Tokyo Variation 2 would have a less than significant impact on transit systems and parking and, therefore, would not result in a cumulative impact to these resources. This alternative proposes a light rail alignment to provide a link between the 7th Street/Metro Center Station and the Metro Gold Line at 1st and Alameda Streets. This connection would provide a direct east-west route from the vicinity of I-605 and the City of Santa Monica and a direct north-south route between the Cities of Azusa and Long Beach. Consequently, transit patrons could travel from east-west or north-south without having to make a transfer in the downtown area. Additionally, the alternative would result in a significant beneficial impact to regional transit systems compared to the No Build and TSM Alternatives.

With implementation of possible mitigation identified in the Transportation Technical Memorandum, the alternative would not contribute to cumulative impacts associated with other modes of transportation (bicycle and pedestrian facilities).

Under the year 2035 traffic forecasts for the Fully Underground LRT Alternative – Little Tokyo Variation 2, one intersection would be impacted during the AM peak hour and three intersections would be impacted during the PM peak hour. During the PM peak hour, all three intersections would be mitigated to a less than significant level. Therefore, the alternative would not contribute to cumulative impacts at these intersections during the PM peak hour. After implementation of the proposed mitigation measures, significant impacts would remain at one intersection during the AM peak hour. In summary, operation of the Fully Underground LRT Alternative – Little Tokyo Variation 2 would result in a considerable contribution to significant cumulative impacts at one intersection (Flower Street/ 4th Street) during the AM peak hour. Please refer to the Transportation Technical Memorandum for more information regarding cumulatively impacted intersections.

It should be noted, a number of intersections would improve under the Fully Underground LRT Alternative – Little Tokyo Variation 1 compared to the No Build Alternative by virtue of a reduction in delays. During the AM peak hour four intersections show delay improvements and seven intersections show delay improvements in the PM peak hour. It should also be noted that the inclusion of the Regional Connector would increase the person-carrying capacity through the downtown transportation environment without adversely impacting overall traffic operations.

5.6.2 Displacement and Relocation

Cumulative impacts under the Fully Underground LRT Alternative – Little Tokyo Variation 2 would be similar to those under the Underground Emphasis LRT Alternative. The Fully Underground LRT Alternative – Little Tokyo Variation 2 would greatly enhance non-auto access by rail to downtown and Little Tokyo. This would partly offset some of the loss of parking in the downtown area. Therefore, this alternative would partly self-mitigate cumulative impacts associated with displacement and relocation.

5.6.3 Community and Neighborhoods

The Fully Underground LRT Alternative – Little Tokyo Variation 2 would result in a beneficial cumulative impact to community mobility, population, housing and employment, and would not contribute to any adverse cumulative effects with respect to viability of existing businesses or emergency services. With implementation of potential mitigation measures identified in the Community and Neighborhood Impacts Technical Memorandum, the alternative would not adversely contribute to cumulative impacts with regards to public health, safety, crime, community resources, or events.

5.6.4 Noise and Vibration

Project-level noise and vibration impacts from operation of the Fully Underground LRT Alternative – Little Tokyo Variation 2 would be less than significant. As a result, operation of the alternative would not contribute to cumulative noise or vibration impacts.

Compliance with Section 41.40(a) of the Los Angeles Municipal Code and any variance to the Code would ensure that noise and vibration levels associated with construction of the Fully Underground LRT Alternative – Little Tokyo Variation 2 would not result in an adverse impact. However, sensitive and/or historic buildings within 21 feet of the construction may be susceptible to vibration damage. Implementation of potential mitigation measures would reduce potentially significant project-level impacts to sensitive or historic buildings within 21 feet of construction to a less than significant level. With implementation of potential mitigation measures identified in the Noise and Vibration Technical Memorandum, construction of the alternative would not contribute to potentially adverse cumulative noise or vibration impacts.

5.6.5 Ecosystems and Biological Resources

Construction activities associated with future projects within the project area have the potential to affect migratory birds if nesting habitat is disturbed during the breeding season. Other ongoing and future construction projects would be required to implement mitigation measures to address any potential impacts to migratory birds under either the Migratory Bird Treaty Act or the California Fish and Game Code. Therefore, there would be no cumulative impacts from the Fully Underground LRT Alternative – Little Tokyo Variation 2 with respect to biological resources.

5.6.6 Geotechnical/Subsurface/Seismic/Hazardous Materials

Cumulative impacts from the Fully Underground LRT Alternative – Little Tokyo Variation 2 could occur if there were a release of hazardous materials during on-going and future projects in the project area that resulted in cumulative impacts to human health or the environment. Compliance with applicable hazardous waste laws and regulations, along with potential mitigation measures identified in the Geotechnical/Subsurface/Seismic/Hazardous Materials Technical Memorandum, would ensure these potential cumulative impacts would be less than significant.

5.6.7 Cultural Resources – Built Environment

Implementation of potential mitigation measures identified in Cultural Resources – Built Environment Technical Memorandum would reduce impacts to historic resources to a less than significant level. Therefore, this alternative would not contribute to cumulative impacts on historic resources. Please refer to the Cultural Resources – Built Environment Technical Memorandum for more detail on specific historic resources.

5.6.8 Cultural Resources – Archaeology

Construction of the Fully Underground LRT Alternative – Little Tokyo Variation 2 has the potential to affect archaeological resources within the APE, including previously unidentified archaeological resources, the Los Angeles zanja system, and sites CA-LAN-3588, P-19-003338,

and P-19-003339. However, implementation of potential mitigation measures identified in Cultural Resources – Archaeology Technical Memorandum would reduce this potential impact to a less than significant level. Therefore, this alternative would not contribute to cumulative impacts on these resources.

5.6.9 Cultural Resources – Paleontology

Fully Underground LRT Alternative - Little Tokyo Variation 2 involves ground disturbance and, therefore, has the potential to adversely impact paleontological resources within the project area. However, implementation of potential mitigation measures identified in Cultural Resources – Paleontology Technical Memorandum would reduce potential adverse impacts to paleontological resources to below the level of significance. Therefore, Fully Underground LRT Alternative - Little Tokyo Variation 2 would not contribute to a cumulative impact on paleontological resources.

5.6.10 Economic and Fiscal

Implementation of mitigation measures identified in the Economic and Fiscal Impacts Technological Memorandum, such as compensation to property owners and business owners, would lessen potential construction impacts. Dependent upon the successful implementation of mitigation where required during construction, some residual impacts could still occur during construction. Given the related projects that could be under construction during the same time as the proposed alternative, construction of the alternative could result in a considerable contribution to cumulative impacts on activity levels and revenue of businesses along the alignment.

All other economic impacts on property tax, economic output, and employment associated with construction and operation of the alternative would be less than significant and the Fully Underground LRT Alternative – Little Tokyo Variation 2 would not contribute to a cumulative economic impact.

Beneficial economic impacts associated with the Fully Underground LRT Alternative – Little Tokyo Variation 2 include indirect and direct employment growth, with the potential to add 25,400 employees to the area economy; improved accessibility and mobility for the region, which would potentially encourage greater economic activity and benefits for businesses; and employees traveling to and from work.

5.6.11 Safety and Security

Potential cumulative impacts of the Fully Underground LRT Alternative – Little Tokyo Variation 2 would be similar to the Underground Emphasis LRT Alternative. From a cumulative perspective, potential impacts associated with the Fully Underground LRT Alternative – Little Tokyo Variation 2 would be mitigated to a less than significant level and would not have a cumulative effect on the safety and security environment in the project area.

Please refer to the Safety and Security Technical Memorandum for a description of potential mitigation measures.

5.6.12 Environmental Justice

The environmental justice analysis treated potential environmental justice impacts to Little Tokyo with special attention given its historical and cultural importance. Although it has shrunk significantly in size, and most of the Japanese-American population has migrated to the suburbs, Little Tokyo remains the historical focal point for Japanese-Americans in the Los Angeles region.

The Fully Underground LRT Alternative – Little Tokyo Variation 2 would result in the following potential disproportionate cumulative impacts: loss of parking in Little Tokyo and impacts to community cohesion/viability of Little Tokyo due to parking losses. Implementation of possible mitigation included in the Environmental Justice Technical Memorandum would reduce the project's contribution to disproportionate cumulative impacts to a less than significant level.

5.6.13 Air Quality Impacts and Health Risk Assessment

Operational emissions for the Fully Underground LRT Alternative – Little Tokyo Variation 2 would be less than significant under both CEQA and NEPA thresholds. Regional construction emissions of VOC, NOx, CO, and $PM_{2.5}$ would result in significant air quality impacts under CEQA. Even with required up-to-date (2014 to 2017) equipment during construction as mitigation, regional construction emissions would remain significant and unavoidable.

Although regional construction emissions under the Fully Underground LRT Alternative – Little Tokyo Variation 2 would be significant and unavoidable, operation of the alternative would reduce regional VMT, which would result in a beneficial impact to air quality and outweigh the temporary adverse construction impacts.

6.0 POTENTIAL MITIGATION MEASURES

Possible mitigation measures that could be implemented to avoid, minimize, or mitigate potentially significant impacts are contained within the specific technical memoranda for each environmental resource.

7.0 CONCLUSIONS

7.1 No Build Alternative

7.1.1 NEPA Findings

The No Build Alternative would not result in adverse direct or indirect impacts related to the following environmental issues: traffic circulation, and parking; land use; displacement and relocation; community and neighborhoods; visual and aesthetic resources; noise and vibration; ecosystems and biological resources; geotechnical, subsurface, seismic hazards, and hazardous materials; water resources; energy resources; greenhouse gas (GHG) emissions; historic resources; archaeological resources; paleontological resources; parklands and other community facilities; Section 4(f) protected resources; economic and fiscal resources; safety and security; growth inducement; or air quality. Therefore, this alternative would not contribute to any adverse cumulative impacts with respect to these environmental resources.

Cumulative transit impacts associated with the No Build Alternative would be adverse as this alternative would not close the gap in the regional rail transit system and would not have the travel time and convenience benefits for transit users associated with the build alternatives. This adverse transit impact would disproportionately affect transit-dependent users who tend to be environmental justice populations based on income and other factors. For transit patrons that have no other travel options, travel times would increase and transit usage would be less convenient. There would be a negative transit impact upon those that rely on the public transit system, for east-west and north-south travel through the downtown area. This would result in an adverse cumulative transit impact.

The No Build Alternative would result in disproportionate impacts associated with transit service equity to minority, low-income communities, but no feasible mitigation (other than construction of one of the build alternatives) exists to minimize this impact. Therefore, the No Build Alternative would result in less-than-significant cumulative disproportionate adverse impacts related to transit service equity.

7.1.2 CEQA Determinations

The No Build Alternative would result in less than significant direct and indirect impacts to all the environmental resources listed above. Therefore, this alternative would not contribute to any significant cumulative impacts with respect to these environmental issues, with the exception of transit systems.

If no significant improvements in transit service are provided in the No Build Alternative, an adverse transit impact would occur to those who rely on the public transit system, for east-

west and north-south travel through the downtown area. This would result in a less-than-significant cumulative transit impact.

7.2 Transportation System Management (TSM) Alternative

7.2.1 NEPA Findings

Implementation of the TSM alternative would not result in adverse direct or indirect impacts related to the following environmental issues: land use; displacement and relocation; community and neighborhoods; visual and aesthetic resources; noise and vibration; ecosystems and biological resources; geotechnical, subsurface, seismic hazards, and hazardous materials; water resources; energy resources; GHG emissions; parklands and other community facilities; Section 4(f) protected resources; economic and fiscal resources; safety and security; and growth inducement. As a result, this alternative would not contribute to adverse cumulative impacts with respect to these environmental resources.

With implementation of mitigation, the TSM Alternative would not result in adverse impacts related to the following environmental issues: transit, traffic, circulation, and parking; historic resources, cultural resources – archaeology; cultural resources – paleontology; environmental justice associated with safety and security. Therefore, this alternative would not contribute to adverse cumulative impacts with respect to these environmental resources.

Cumulative transit impacts associated with the TSM Alternative would be adverse as this alternative would not close the gap in the regional rail transit system and would not have the travel time and convenience benefits for transit users associated with the build alternatives. This adverse transit impact would disproportionately affect transit-dependent users who tend to be environmental justice populations based on income and other factors. For transit patrons that have no other travel options, travel times would increase and transit usage would be less convenient. There would be a negative transit impact upon those that rely on the public transit system, for east-west and north-south travel through the downtown area. This would result in an adverse cumulative transit impact.

The TSM Alternative would result in disproportionate impacts associated with transit service equity to minority, low-income communities, but no feasible mitigation exists (other than construction of either of the two build alternatives) that would minimize the transit service equity impacts. Therefore, the TSM Alternative would result in less-than-significant cumulative disproportionate adverse impacts related to transit service equity.

7.2.2 CEQA Determinations

Implementation of the TSM alternative would not result in significant direct or indirect impacts related to the following environmental issues: land use; displacement and relocation; community and neighborhoods; visual and aesthetic resources; noise and vibration; ecosystems and biological resources; geotechnical, subsurface, seismic hazards, and

hazardous materials; water resources; energy resources; GHG emissions; parklands and other community facilities; Section 4(f) protected resources; economic and fiscal resources; safety and security; and growth inducement. As a result, this alternative would not contribute to cumulative impacts with respect to these environmental issues.

With implementation of mitigation, the TSM Alternative would not result in significant impacts related to the following environmental issues: transit, traffic, circulation, and parking; cultural resources – archaeology; or cultural resources – paleontology. Therefore, this alternative would not contribute to cumulative impacts with respect to these environmental issues.

If no substantial improvements in transit service are provided in the TSM Alternative, an adverse transit impact would occur to those who rely on the public transit system, for east-west and north-south travel through the downtown area. This would result in a less-than-significant cumulative transit impact.

7.3 At-Grade Emphasis LRT Alternative

7.3.1 NEPA Findings

There would be no adverse cumulative impacts from the At-Grade Emphasis LRT Alternative with respect to transit systems, land use; visual or aesthetic resources; noise or vibration associated with project operation; noise during construction; water resources; energy resources; air quality under NEPA; GHG emissions; parklands or other community facilities; Section 4(f) protected parks, recreation areas, or refuges; or growth inducement.

With implementation of project-level mitigation measures, the At-Grade Emphasis LRT Alternative is not anticipated to contribute to any adverse cumulative impacts with respect to the following issues: parking or other modes of transportation; public health, safety, crime, community resources, or events; vibration during construction; ecosystems or biological resources; geotechnical, subsurface, seismic, hazards, or hazardous materials; historic resources; cultural resources – archaeology; cultural resources – paleontology; economic or fiscal resources; safety or security; or environmental justice issues.

With incorporation of possible mitigation, construction of the At-Grade Emphasis LRT Alternative would still result in a considerable contribution to cumulative construction impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements.

Operation of the At-Grade Emphasis LRT Alternative would result in a considerable contribution to adverse cumulative impacts at 11 intersections during the AM peak hour and 15 intersections during the PM peak hour.

With regards to permanent displacements, operation of the At-Grade Emphasis LRT Alternative would partially offset potential adverse impacts due to loss of parking.

7.3.2 CEQA Determinations

The At-Grade Emphasis LRT Alternative would have no cumulative impact on transit systems, land use; visual or aesthetic resources; noise or vibration associated with project operation; noise during construction; water resources; energy resources; GHG emissions; parklands or other community facilities; Section 4(f) protected parks, recreation areas, or refuges; or growth inducement.

With implementation of project-level mitigation measures, the At-Grade Emphasis LRT Alternative is not anticipated to contribute to any significant cumulative impacts with respect to the following issues: parking or other modes of transportation during operation; public health, safety, crime, community resources, or events; vibration during construction; ecosystems or biological resources; geotechnical, subsurface, seismic, hazards, or hazardous materials; historic resources; cultural resources – archaeology; cultural resources – paleontology; economic or fiscal resources; or safety or security.

With incorporation of possible mitigation, construction of the At-Grade Emphasis LRT Alternative would still result in a considerable contribution to cumulative construction impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements.

Operation of the At-Grade Emphasis LRT Alternative would result in a considerable contribution to significant cumulative impacts at 11 intersections during the AM peak hour and 15 intersections during the PM peak hour.

With regards to permanent displacements, operation of the At-Grade Emphasis LRT Alternative would partially offset potentially significant impacts due to loss of parking.

Operational emissions for the At-Grade Emphasis LRT Alternative would be less than significant under CEQA thresholds and, therefore, would not result in a cumulative impact. Although regional construction emissions under the At-Grade Emphasis LRT Alternative would be significant and unavoidable, operation of the alternative would reduce regional VMT, which would result in a beneficial impact to air quality and outweigh temporary significant construction impacts.

7.4 Underground Emphasis LRT Alternative

7.4.1 NEPA Findings

There would be no adverse cumulative impacts from the Underground Emphasis LRT Alternative with respect to transit systems, land use; visual or aesthetic resources; noise or

vibration associated with project operation; noise during construction; water resources; energy resources; air quality under NEPA; GHG emissions; parklands or other community facilities; Section 4(f) protected resources; or growth inducement.

With implementation of project-level mitigation measures, the Underground Emphasis LRT Alternative is not anticipated to contribute to any adverse cumulative impacts with respect to the following issues: parking or other modes of transportation; public health, safety, crime, community resources, or events; vibration during construction; ecosystems or biological resources; geotechnical, subsurface, seismic, hazards, or hazardous materials; historic resources; archaeological resources; paleontological resources; economic or fiscal resources; safety or security; or environmental justice issues.

With incorporation of possible mitigation, construction of the Underground Emphasis LRT Alternative would still result in a considerable contribution to cumulative construction impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements.

Operation of the Underground Emphasis LRT Alternative would result in a considerable contribution to adverse cumulative impacts at two intersections (Alameda Street/2nd Street and Flower Street/4th Street) during the AM peak hour and three intersections (Judge John Aiso Street/1st Street; Alameda Street/2nd Street; and Judge John Aiso Street/Temple Street) during the PM peak hour.

With regards to permanent displacements, operation of the Underground Emphasis LRT Alternative would partially offset potential adverse impacts due to loss of parking.

7.4.2 CEQA Determinations

The Underground Emphasis LRT Alternative would have no cumulative impact on transit systems, land use; visual or aesthetic resources; noise or vibration associated with project operation; noise during construction; water resources; energy resources; GHG emissions; parklands or other community facilities; Section 4(f) protected resources; or growth inducing effects.

With implementation of project-level mitigation measures, the Underground Emphasis LRT Alternative is not anticipated to contribute to any significant cumulative impacts with respect to the following issues: parking or other modes of transportation; public health, safety, crime, community resources, or events; vibration during construction; ecosystems or biological resources; geotechnical, subsurface, seismic, hazards, or hazardous materials; historic resources; cultural resources – archaeology; cultural resources – paleontology; economic or fiscal resources; or safety or security.

With incorporation of possible mitigation, construction of the Underground Emphasis LRT Alternative would still result in a considerable contribution to cumulative construction impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements.

Operation of the Underground Emphasis LRT Alternative would result in a considerable contribution to significant cumulative impacts at two intersections (Alameda Street/2nd Street and Flower Street/4th Street) during the AM peak hour and three intersections (Judge John Aiso Street/1st Street; Alameda Street/2nd Street; and Judge John Aiso Street/Temple Street) during the PM peak hour.

With regards to permanent displacements, operation of the Underground Emphasis LRT Alternative would partially offset potential significant impacts due to loss of parking.

Operational emissions for the Underground Emphasis LRT Alternative would be less than significant under CEQA thresholds and, therefore, not result in a cumulative impact. Although regional construction emissions under the Underground Emphasis LRT Alternative would be significant and unavoidable, operation of the alternative would reduce regional VMT, which would result in a beneficial impact to air quality and outweigh temporary significant construction impacts.

7.5 Fully Underground LRT Alternative – Little Tokyo Variation 1

7.5.1 NEPA Findings

There would be no adverse cumulative impacts from the Fully Underground LRT Alternative – Little Tokyo Variation 1 with respect to transit systems or parking during operation; land use; visual or aesthetic resources; noise or vibration associated with project operation; noise during construction; water resources; energy resources; air quality under NEPA; GHG emissions; parklands or other community facilities; Section 4(f) protected resources; or growth inducement.

With implementation of project-level mitigation measures, the Fully Underground LRT Alternative – Little Tokyo Variation 1 is not anticipated to contribute to any adverse cumulative impacts with respect to the following issues: other modes of transportation during operation; displacements; public health, safety, crime, community resources, or events; vibration during construction; ecosystems or biological resources; geotechnical, subsurface, seismic, hazards, or hazardous materials; historic resources; archaeological resources; paleontological resources; economic or fiscal resources; safety or security; or environmental justice issues.

With incorporation of possible mitigation, construction of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would still result in a considerable contribution to

cumulative construction impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements.

Operation of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would result in a considerable contribution to an adverse cumulative impact at one intersection (Flower Street/ 4th Street) during the AM peak hour.

7.5.2 CEQA Determinations

The Fully Underground LRT Alternative – Little Tokyo Variation 1 would have no cumulative impact on transit systems or parking during operation; land uses; visual or aesthetic resources; noise or vibration associated with project operation; noise during construction; water resources; energy resources; GHG emissions; parklands or other community facilities; Section 4(f) protected resources; or growth inducement.

With implementation of project-level mitigation measures, the Fully Underground LRT Alternative – Little Tokyo Variation 1 is not anticipated to contribute to any significant cumulative impacts with respect to the following issues: other modes of transportation; displacements; public health, safety, crime, community resources, or events; vibration during construction; ecosystems or biological resources; geotechnical, subsurface, seismic, hazards, or hazardous materials; historic resources; cultural resources – archaeology; cultural resources – paleontology; economic or fiscal resources; or safety or security.

With incorporation of possible mitigation, construction of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would still result in a considerable construction contribution to cumulative impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements.

Operation of the Fully Underground LRT Alternative – Little Tokyo Variation 1 would result in a considerable contribution to a significant cumulative impact at one intersection (Flower Street/ 4th Street) during the AM peak hour.

Operational emissions for the Fully Underground LRT Alternative – Little Tokyo Variation 1 would be less than significant under CEQA thresholds and, therefore, not result in a cumulative impact. Although regional construction emissions under the alternative would be significant and unavoidable, operation of the alternative would reduce regional VMT, which would result in a beneficial impact to air quality and outweigh the temporary significant construction impacts.

7.6 Fully Underground LRT Alternative – Little Tokyo Variation 2

7.6.1 NEPA Findings

There would be no adverse cumulative impacts from the Fully Underground LRT Alternative – Little Tokyo Variation 2 with respect to transit systems or parking during operation; land uses; visual or aesthetic resources; noise or vibration associated with project operation; noise during construction; water resources; energy resources; air quality under NEPA; GHG emissions; parklands or other community facilities; Section 4(f) protected resources; or growth inducement.

With implementation of project-level mitigation measures, the Fully Underground LRT Alternative – Little Tokyo Variation 2 is not anticipated to contribute to any adverse cumulative impacts with respect to the following issues: other modes of transportation during operation; displacements; public health, safety, crime, community resources, or events; vibration during construction; ecosystems or biological resources; geotechnical, subsurface, seismic, hazards, or hazardous materials; historic resources; archaeological resources; paleontological resources; economic or fiscal resources; safety or security; or environmental justice issues.

With incorporation of possible mitigation, construction of the Fully Underground LRT Alternative – Little Tokyo Variation 2 would still result in a considerable construction contribution to cumulative impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements.

Operation of the Fully Underground LRT Alternative – Little Tokyo Variation 2 would result in a considerable contribution to an adverse cumulative impact at one intersection (Flower Street/ 4th Street) during the AM peak hour.

7.6.2 CEQA Determinations

The Fully Underground LRT Alternative – Little Tokyo Variation 2 would have no cumulative impact on transit systems or parking; land use; visual or aesthetic resources; noise or vibration associated with project operation; noise during construction; water resources; energy resources; GHG emissions; parklands or other community facilities; Section 4(f) protected historic resources; or growth inducement.

With implementation of project-level mitigation measures, the Fully Underground LRT Alternative – Little Tokyo Variation 2 is not anticipated to contribute to any significant cumulative impacts with respect to the following issues: other modes of transportation; displacements; public health, safety, crime, community resources, or events; vibration during construction; ecosystems or biological resources; geotechnical, subsurface, seismic, hazards, or hazardous materials; historic resources; cultural resources – archaeology; cultural resources – paleontology; economic or fiscal resources; or safety or security.

With incorporation of possible mitigation, construction of the Fully Underground LRT Alternative – Little Tokyo Variation 2 would still result in a considerable contribution to cumulative construction impacts associated with bus transit, traffic circulation, and pedestrian and bicycle movements.

Operation of the Fully Underground LRT Alternative – Little Tokyo Variation 2 would result in a considerable contribution to a significant cumulative impact at one intersection (Flower Street/ 4th Street) during the AM peak hour.

Operational emissions for the Fully Underground LRT Alternative – Little Tokyo Variation 2 would be less than significant under CEQA thresholds and, therefore, not result in a cumulative impact. Although regional construction emissions under the alternative would be significant and unavoidable, operation of the alternative would reduce regional VMT, which would result in a beneficial impact to air quality and outweigh the temporary significant construction impacts.

8.0 REFERENCES CITED

Council of Environmental Quality (CEQ). 1997. *Considering Cumulative Effects Under the National Environmental Policy Act.*